ORIGINAL

I 49.89/2:85(15) map B1

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF FLORIDA

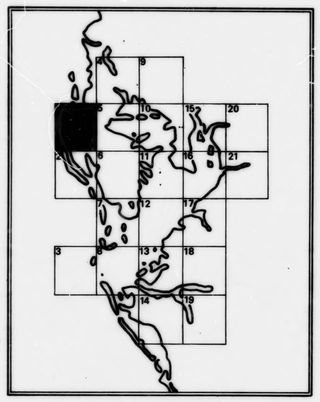
CLEARWATER QUADRANGLE
FLORIDA – PINELLAS CO
7.5 MINUTE SERIES (TOPOGRAPHIC)

MAP B1

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

CLEARWATER



Scale 1:24,000

1984

TOPICAL MAPS IN THIS ATLAS:
A. BIOLOGICAL RESOURCES
B. WATER RESOURCES

Produced by U.S. Fish and Wildlife Service
Projection and 1,000 meter grid, zone 17: Universal Transverse Mercator
10,000-foot grid ticks based on Florida coordinate system, east and west zones

Overlay material compiled in 1984 from latest available data obtained from Federal, State and Local government agencies and other sources.

There is no map A19 due to a lack of data.

LEGEND

35 — MEAN ANNUAL MID-DEPTH SPECIFIC CONDUCTIVITY ISOPLETH (WATER QUALITY) CONTOUR MAP
Five year mean annual specific conductivity September 1978 - August 1983 (mmhos)

POINT SOURCE DISCHARGES *

▲10 Q=___ Industrial Point Source Discharge. Q is permitted capacity in total gallons per day (tgd) or in millions of gallons per day (mgd).

△10 Q=___ Municipal Point Source Discharge. Q is permitted capacity in total gallons per day (tgd) or millions of gallons per day (mgd).

Dredge Spoil Area — DREDGE SPOIL DISPOSAL SITES

TIDE STATION * (National Ocean Service)

⊡10 Active tide station. The tide station number is listed next to the symbol.

□10 Inactive tide station location. The tide station number is listed next to the symbol.

○10 WATER QUALITY SAMPLING STATION * (Hillsborough County Environmental Protection Commission)
Five year seasonal means, Sept. 1978 - Aug. 1983

2 — BATHYMETRY
The contour interval is 2.0 meters with an initial 1.0 meter supplemental contour line added to better define shoals and inshore tidal flats.

INTERTIDAL ZONE
This zone demarcates the area exposed and flooded by the tides and occurs between the line and the shore.

GENERALIZED SEDIMENT MAP
- Sand
- Shelly Sand
- Silty Sand
- Clayey Sand
- Sandy Clay
- Silt

NET TIDAL CURRENT
Resultant tidal current. The direction is indicated by the arrow and the discharge range is feet per second
- 0.01 - 0.10 ft/sec
- 0.11 - 0.20 ft/sec
- 0.21 - 0.30 ft/sec
- 0.31 - 0.50 ft/sec
- > 0.50 ft/sec

F/S — FRESHWATER/SALTWATER INTERFACE
(U.S. Geological Survey 1979)
250 mg/l line of equal chloride concentration in the upper part of Floridan aquifer.

*Symbols appearing with numbers are described more fully in the narrative

SCALE 1:24000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 KILOMETER

THE TAMPA BAY ENVIRONMENTAL ATLAS WAS PRODUCED BY THE U.S. FISH AND WILDLIFE SERVICE, DIVISION OF BIOLOGICAL SERVICES NATIONAL COASTAL ECOSYSTEMS TEAM (FWS/OBS) FOR COASTAL PLANNERS, DECISION MAKERS AND THE GENERAL PUBLIC TO DETERMINE AND EVALUATE CHANGE AND TO RESOLVE CONFLICTS AMONG LAND USES, FISH AND WILDLIFE REQUIREMENTS, AND THE MAINTENANCE OF ECOLOGICAL DIVERSITY. THE STUDY AREA INCLUDES A MAJOR PORTION OF THE COASTAL COUNTIES OF PINELLAS, HILLSBOROUGH, MANATEE, AND A SMALL PORTION OF SARASOTA. THERE IS NO ATTEMPT, IN THE DESIGN OR PRODUCTS OF THIS STUDY, TO DEFINE THE LIMITS OF PROPRIETARY JURISDICTION OF ANY FEDERAL, STATE, OR LOCAL GOVERNMENT TO ESTABLISH THE GEOGRAPHICAL SCOPE OF THE REGULATORY PROGRAMS OF GOVERNMENT AGENCIES.

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PRIMARY SOURCES OF MAPPED INFORMATION

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POINT SOURCE DISCHARGES: Computer printout of industrial and municipal point source discharges in West Central Florida. Florida Dept. of Environmental Regulation, 1983.

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N.O.S. TIDE STATIONS: Index of tide stations for the state of Florida. National Ocean Service, Rockville, Md. 1981.

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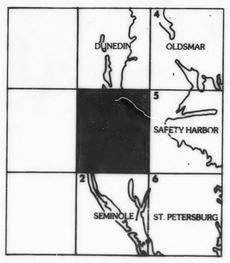
FRESHWATER-SALTWATER INTERFACE: Position of the Freshwater- Saltwater interface in the upper part of the Floridan aquifer, Southwest Florida, 1979. U.S.G.S. water resources open-file report 82-80. Causseaux and Fretwell, 1982.

FOR COMPLETE REFERENCE SEE MAP NARRATIVE

Selected areas on this U.S.G.S. base map updated using information extracted from aerial photography. This information not field checked.



Note: Specific conductivity values on the supplemental legend should be in µmhos.

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I 49.89/2:85(15) map B.

ORIGINAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF FLORIDA

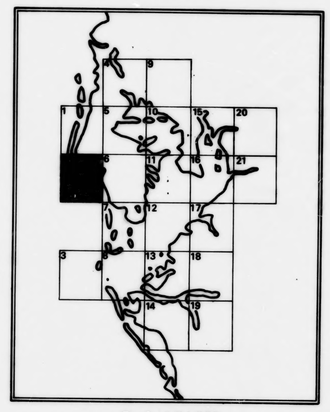
SEMINOLE QUADRANGLE
FLORIDA – PINELLAS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

MAP B2

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

SEMINOLE



Scale 1:24,000

1984

TOPICAL MAPS IN THIS ATLAS:
A. BIOLOGICAL RESOURCES
B. WATER RESOURCES

Produced by U.S. Fish and Wildlife Service
Projection and 1,000 meter grid, zone 17: Universal Transverse Mercator
10,000-foot grid ticks based on Florida coordinate system, east and west zones

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There is no map A19 due to a lack of data.

LEGEND

MEAN ANNUAL MID-DEPTH SPECIFIC CONDUCTIVITY ISOPLETH (WATER QUALITY) CONTOUR MAP
Five year mean annual specific conductivity September 1978 - August 1983 (mmhos)

POINT SOURCE DISCHARGES *

Industrial Point Source Discharge. Q is permitted capacity in total gallons per day (tgd) or in millions of gallons per day (mgd).

Municipal Point Source Discharge. Q is permitted capacity in total gallons per day (tgd) or millions of gallons per day (mgd).

DREDGE SPOIL DISPOSAL SITES

TIDE STATION *
(National Ocean Service)

Active tide station. The tide station number is listed next to the symbol.

Inactive tide station location. The tide station number is listed next to the symbol.

WATER QUALITY SAMPLING STATION *
(Hillsborough County Environmental Protection Commission)
Five year seasonal means, Sept. 1978 - Aug. 1983

BATHYMETRY
The contour interval is 2.0 meters with an initial 1.0 meter supplemental contour line added to better define shoals and inshore tidal flats.

INTERTIDAL ZONE
This zone demarcates the area exposed and flooded by the tides and occurs between the line and the shore.

GENERALIZED SEDIMENT MAP
- Sand
- Shelly Sand
- Silty Sand
- Clayey Sand
- Sandy Clay
- Silt

NET TIDAL CURRENT
Resultant tidal current. The direction is indicated by the arrow and the discharge range is feet per second
- 0.01 - 0.10 ft/sec
- 0.11 - 0.20 ft/sec
- 0.21 - 0.30 ft/sec
- 0.31 - 0.50 ft/sec
- > 0.50 ft/sec

FRESHWATER/SALTWATER INTERFACE
(U.S. Geological Survey 1979)
250 mg/l line of equal chloride concentration in the upper part of Floridan aquifer.

*Symbols appearing with numbers are described more fully in the narrative

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DREDGE SPOIL DISPOSAL AREAS: Dredge and Spoil easement location maps. Florida Dept. of Natural Resources.

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BATHYMETRIC: Bathymetric map to St. Petersburg Quadrangle, N.O.S. 1978.

INTERTIDAL ZONE: Nautical Chart #'s 11410, 11413, 11414 and 11425. N.O.S., Rockville, Md. 1983.

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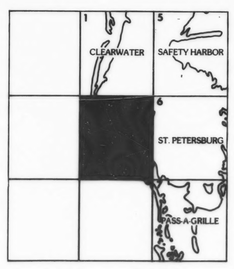
TIDAL CURRENTS: Changes in tidal flow, circulation and flushing caused by dredge and fill in Tampa Bay, Florida. U.S. Geological Survey Open File Report #84-647. Goodwin, 1984.

FRESHWATER-SALTWATER INTERFACE: Position of the Freshwater-Saltwater interface in the upper part of the Floridan aquifer, Southwest Florida, 1979. U.S.G.S. water resources open-file report 82-90. Causseaux and Fretwell, 1982.

FOR COMPLETE REFERENCE SEE MAP NARRATIVE

SCALE 1:24 000

1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER



Note: Specific conductivity values on the supplemental legend should be in µmhos.

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF FLORIDA

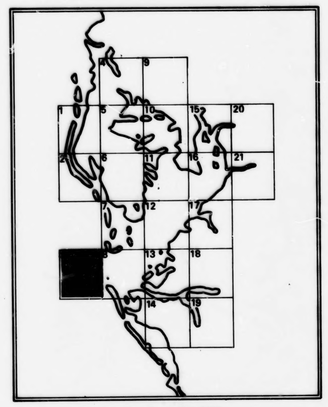
EGMONT KEY QUADRANGLE
FLORIDA
7.5 MINUTE SERIES (TOPOGRAPHIC)

MAP B3

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

EGMONT KEY



Scale 1:24,000

1984

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B. WATER RESOURCES

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LEGEND

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Five year mean annual specific conductivity September 1978 - August 1983 (mmhos)

POINT SOURCE DISCHARGES *

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Dredge Spoil Area — DREDGE SPOIL DISPOSAL SITES

TIDE STATION *
(National Ocean Service)

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WATER QUALITY SAMPLING STATION *
(Hillsborough County Environmental Protection Commission)
Five year seasonal means, Sept. 1978 - Aug. 1983

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- Sand
- Shelly Sand
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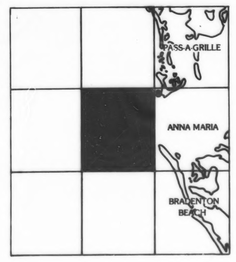
FOR COMPLETE REFERENCE SEE MAP NARRATIVE

SCALE 1:24 000

1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER



Note: Specific conductivity values on the supplemental legend should be in µmhos.

Supplemental Legend for Water Quality Stations on This Map

Station #94 — Lat. 27°36'36" — Long. 82°46'58"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	15.2	13.7	17.5	11.8	14.5
Conductivity (mmhos)	53733	52994	52980	54713	53568
Turbidity (JTU's)	5.7	2.4	4.1	5.4	4.8
Temperature (°C)	21.8	29.4	25.4	18.8	23.1
Total Nitrogen (mg/l)	0.33	0.52	0.41	0.43	0.42

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I 49.89/2:85(15) map B4

ORIGINAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF FLORIDA

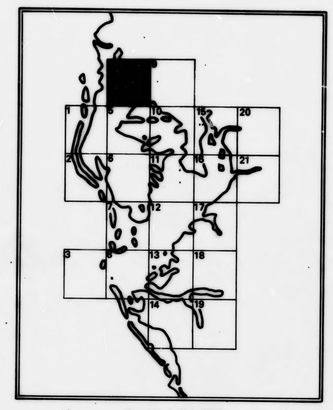
OLDSMAR QUADRANGLE
FLORIDA
7.5 MINUTE SERIES (TOPOGRAPHIC)

MAP B4

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

OLDSMAR



Scale 1:24,000

1984

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B. WATER RESOURCES

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DREDGE SPOIL DISPOSAL SITES

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10 — Inactive tide station location. The tide station number is listed next to the symbol.

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GENERALIZED SEDIMENT MAP
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- Shelly Sand
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- Sandy Clay
- Silt

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(U.S. Geological Survey 1979)
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1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 KILOMETER

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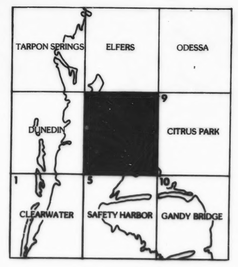
FOR COMPLETE REFERENCE SEE MAP NARRATIVE



Note: Specific conductivity values on the supplemental legend should be in µmhos.

Supplemental Legend for Water Quality Stations on This Map

Station #101 — Lat. 28°01'32" — Long. 82°37'56"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	14.7	18.3	23.1	10.7	16.2
Conductivity (umhos)	16770	16227	14872	15804	15868
Turbidity (NTU'S)	7.5	8.7	5.1	4.3	6.4
Temperature (°C)	22.8	28.3	24.5	16.8	22.6
Total Nitrogen (mg/l)	1.16	1.32	1.22	1.08	1.19

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I 49.87/2:B5(13)/map 2

ORIGINAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

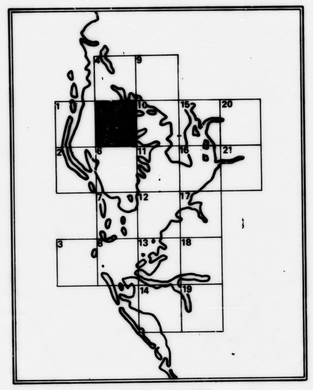
SAFETY HARBOR QUADRANGLE
FLORIDA
7.5 MINUTE SERIES (TOPOGRAPHIC)

MAP B5

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

SAFETY HARBOR



Scale 1:24,000

1984

TOPICAL MAPS IN THIS ATLAS:
A. BIOLOGICAL RESOURCES
B. WATER RESOURCES

Produced by U.S. Fish and Wildlife Service
Projection and 1,000 meter grid, zone 17: Universal Transverse Mercator
10,000-foot grid ticks based on Florida coordinate system, east and west zones

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There is no map A19 due to a lack of data.

LEGEND

35 — MEAN ANNUAL MID-DEPTH SPECIFIC CONDUCTIVITY ISOPLETH (WATER QUALITY) CONTOUR MAP
Five year mean annual specific conductivity September 1978 - August 1983 (mmhos)

POINT SOURCE DISCHARGES *

10 Q=___ Industrial Point Source Discharge. Q is permitted capacity in total gallons per day (tgd) or in millions of gallons per day (mgd).

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Dredge Spoil Area — DREDGE SPOIL DISPOSAL SITES

TIDE STATION *
(National Ocean Service)

10 Active tide station. The tide station number is listed next to the symbol.

10 Inactive tide station location. The tide station number is listed next to the symbol.

10 WATER QUALITY SAMPLING STATION *
(Hillsborough County Environmental Protection Commission)
Five year seasonal means, Sept. 1978 - Aug. 1983

2 — BATHYMETRY
The contour interval is 2.0 meters with an initial 1.0 meter supplemental contour line added to better define shoals and inshore tidal flats.

INTERTIDAL ZONE
This zone demarcates the area exposed and flooded by the tides and occurs between the line and the shore.

GENERALIZED SEDIMENT MAP
- Sand
- Shelly Sand
- Silty Sand
- Clayey Sand
- Sandy Clay
- Silt

NET TIDAL CURRENT
Resultant tidal current. The direction is indicated by the arrow and the discharge range is feet per second
- 0.01 - 0.10 ft/sec
- 0.11 - 0.20 ft/sec
- 0.21 - 0.30 ft/sec
- 0.31 - 0.50 ft/sec
- > 0.50 ft/sec

F S — FRESHWATER/SALTWATER INTERFACE
(U.S. Geological Survey 1979)
250 mg/l line of equal chloride concentration in the upper part of Floridan aquifer.

*Symbols appearing with numbers are described more fully in the narrative

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DREDGE SPOIL DISPOSAL AREAS: Dredge and Spoil easement location maps. Florida Dept. of Natural Resources

N.O.S. TIDE STATIONS: Index of tide stations for the state of Florida. National Ocean Service, Rockville, Md. 1981.

WATER QUALITY: Total chlorophyll, conductivity, turbidity, temperature and total nitrogen data for Tampa Bay water quality stations, Sept. 1978 - August 1983. Hillsborough County Environmental Protection Commission.

BATHYMETRIC: Bathymetric map to St. Petersburg Quadrangle, N.O.S. 1978.

INTERTIDAL ZONE: Nautical Chart #'s 11410, 11413, 11414 and 11425. N.O.S., Rockville, Md. 1983.

SEDIMENTS: Sediments, oceanographic observations and Floristic data for Tampa Bay, Florida and adjacent waters, 1961-1965. Taylor and Salomen, 1969.

TIDAL CURRENTS: Changes in tidal flow, circulation and flushing caused by dredge and fill in Tampa Bay, Florida. U.S. Geological Survey Open File Report #84-447. Goodwin, 1984.

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FOR COMPLETE REFERENCE SEE MAP NARRATIVE

SCALE 1:24 000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER
5 0

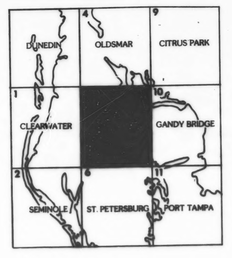
Supplemental Legend (Cont'd)

Station #65 — Lat. 27°56'35" — Long. 82°41'38"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	32.6	33.7	37.3	27.5	32.7
Conductivity (mmhos)	37050	34706	35150	37633	36009
Turbidity (JTU'S)	7.1	6.5	6.3	6.1	6.3
Temperature (°C)	21.7	29.7	24.3	15.4	22.5
Total Nitrogen (mg/l)	0.76	1.15	1.23	0.87	1.00

Station #66 — Lat. 27°55'37" — Long. 82°38'14"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	33.5	31.7	34.1	28.3	31.4
Conductivity (mmhos)	37787	35815	35083	35567	36568
Turbidity (JTU'S)	5.8	7.2	4.5	3.3	5.2
Temperature (°C)	21.8	29.8	24.4	15.1	22.5
Total Nitrogen (mg/l)	0.67	0.80	0.84	0.68	0.82



Note: Specific conductivity values on the supplemental legend should be in mmhos.

Supplemental Legend for Water Quality Stations on This Map

Station #46 — Lat. 27°59'22" — Long. 82°35'29"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	22.0	31.2	31.8	17.3	25.5
Conductivity (mmhos)	36017	34195	32763	36459	35477
Turbidity (JTU'S)	6.4	8.5	5.2	3.0	5.8
Temperature (°C)	22.0	29.0	24.9	14.7	22.6
Total Nitrogen (mg/l)	0.70	1.03	1.04	0.71	0.87

Station #40 — Lat. 27°59'18" — Long. 82°38'01"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	21.8	30.7	31.7	18.5	25.2
Conductivity (mmhos)	37062	35474	33700	36767	36345
Turbidity (JTU'S)	5.8	8.3	4.6	3.3	5.8
Temperature (°C)	21.7	29.1	24.2	14.8	22.5
Total Nitrogen (mg/l)	0.71	0.97	1.16	0.88	0.88

Station #64 — Lat. 27°58'27" — Long. 82°46'43"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	30.7	29.5	31.1	19.5	25.3
Conductivity (mmhos)	36317	33195	32360	36167	34660
Turbidity (JTU'S)	5.7	8.0	5.7	3.2	5.2
Temperature (°C)	21.7	29.0	24.3	14.8	22.6
Total Nitrogen (mg/l)	0.80	0.98	1.15	0.87	0.94

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I 49.89/2:85(15) map B6

ORIGINAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

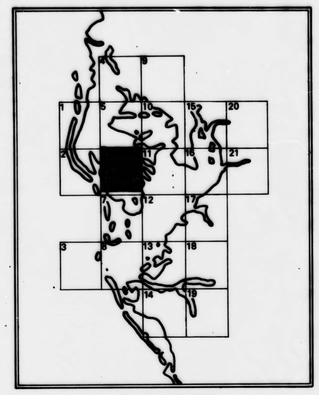
ST. PETERSBURG QUADRANGLE
FLORIDA—PINELLAS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

MAP B6

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

ST. PETERSBURG



Scale 1:24,000

1984

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LEGEND

35 MEAN ANNUAL MID-DEPTH SPECIFIC CONDUCTIVITY ISOPLETH (WATER QUALITY) CONTOUR MAP
Five year mean annual specific conductivity September 1978 - August 1983 (mmhos)

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DREDGE SPOIL DISPOSAL SITES

TIDE STATION * (National Ocean Service)

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○10 WATER QUALITY SAMPLING STATION * (Hillsborough County Environmental Protection Commission) Five year seasonal means, Sept. 1978 - Aug. 1983

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The contour interval is 2.0 meters with an initial 1.0 meter supplemental contour line added to better define shoals and inshore tidal flats.

INTERTIDAL ZONE
This zone demarcates the area exposed and flooded by the tides and occurs between the line and the shore.

GENERALIZED SEDIMENT MAP
Sand
Shelly Sand
Silty Sand
Clayey Sand
Sandy Clay
Silt

*NET TIDAL CURRENT
Resultant tidal current. The direction is indicated by the arrow and the discharge range is feet per second.
0.01 - 0.10 ft/sec
0.11 - 0.20 ft/sec
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F / S FRESHWATER/SALTWATER INTERFACE
(U.S. Geological Survey 1979)
250 mg/l line of equal chloride concentration in the upper part of Floridan aquifer.

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SCALE 1:24 000
1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 KILOMETER

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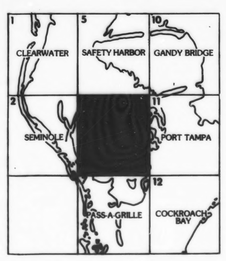

Note: Specific conductivity values on the supplemental legend should be in µmhos.

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I 49.89/2:85(15) map B7

ORIGINAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

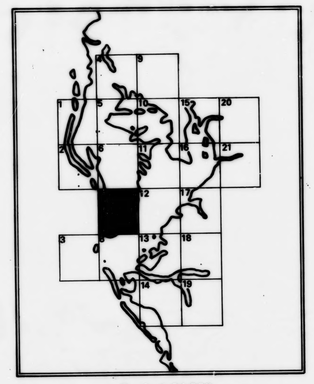
PASS-A-GRILLE BEACH QUADRANGLE
FLORIDA
7.5 MINUTE SERIES (TOPOGRAPHIC)

MAP B7

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

PASS-A-GRILLE



Scale 1:24,000

1984

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DREDGE SPOIL DISPOSAL SITES

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1 MILE
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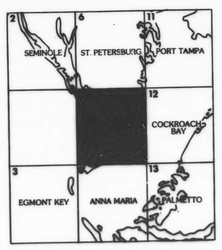

Note: Specific conductivity values on the supplemental legend should be in µmhos.

Supplemental Legend for Water Quality Stations on This Map

Station #25 — Lat. 27°39'13" — Long. 82°40'13"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	10.0	20.0	20.7	11.2	15.4
Conductivity (mmhos)	46953	47555	47399	51095	48225
Turbidity (JTU's)	4.0	4.0	5.4	3.6	4.4
Temperature (°C)	22.9	30.0	25.0	18.6	23.6
Total Nitrogen (mg/l)	0.51	0.53	0.65	0.39	0.52

Station #26 — Lat. 27°38'18" — Long. 82°41'18"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	17.0	19.7	22.2	16.6	18.5
Conductivity (mmhos)	51167	48864	39887	52278	48918
Turbidity (JTU's)	5.0	3.0	7.1	4.0	5.3
Temperature (°C)	22.0	30.1	25.2	18.4	23.0
Total Nitrogen (mg/l)	0.45	0.69	0.69	0.51	0.62

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I 49.89/2:85(15) map B8

ORIGINAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF FLORIDA

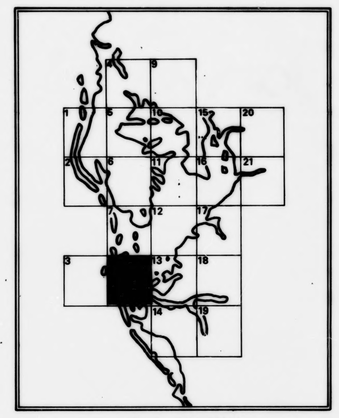
ANNA MARIA QUADRANGLE
FLORIDA
7.5 MINUTE SERIES (TOPOGRAPHIC)

MAP B8

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

ANNA MARIA



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SEDIMENTS: Sediments, oceanographic observations and Floristic data for Tampa Bay, Florida and adjacent waters, 1961-1965. Taylor and Saloman, 1969.

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FOR COMPLETE REFERENCE SEE MAP NARRATIVE

SCALE 1:24 000

1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 KILOMETER

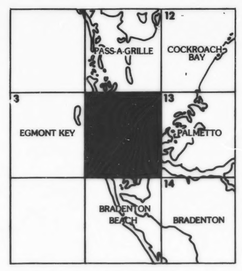
Supplemental Legend (Cont'd)

Station #83 — Lat. 27°34'48" — Long. 82°44'42"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	14.0	15.1	18.1	11.4	14.8
Conductivity (mmhos)	53833	52778	51987	53809	53650
Turbidity (NTU'S)	4.4	2.3	3.6	4.4	3.7
Temperature (°C)	22.3	28.5	25.2	16.2	23.3
Total Nitrogen (mg/l)	0.38	0.51	0.69	0.39	0.48

Station: #85 — Lat. 27°36'30" — Long. 82°41'42"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	16.9	14.3	18.5	12.7	15.8
Conductivity (mmhos)	53333	51465	50853	53027	52398
Turbidity (NTU'S)	5.1	2.1	4.7	5.4	4.3
Temperature (°C)	22.1	28.6	25.2	16.3	23.3
Total Nitrogen (mg/l)	0.38	0.57	0.48	0.41	0.48



Note: Specific conductivity values on the supplemental legend should be in μmhos.

Supplemental Legend for Water Quality Stations on This Map

Station #81 — Lat. 27°37'30" — Long. 82°38'24"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	17.7	15.5	20.2	12.5	16.5
Conductivity (mmhos)	51416	49706	49867	52822	50603
Turbidity (NTU'S)	4.4	2.1	5.2	4.4	4.0
Temperature (°C)	22.2	28.7	25.4	16.3	23.4
Total Nitrogen (mg/l)	0.42	0.51	0.61	0.51	0.51

Station #82 — Lat. 27°37'00" — Long. 82°41'12"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	12.3	15.1	18.3	11.8	14.2
Conductivity (mmhos)	52580	52148	49833	52488	51739
Turbidity (NTU'S)	4.0	3.2	5.2	3.2	3.9
Temperature (°C)	22.4	28.8	26.3	16.4	23.4
Total Nitrogen (mg/l)	0.30	0.54	0.59	0.37	0.45

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I 49.89/2:85(15) map B9

ORIGINAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

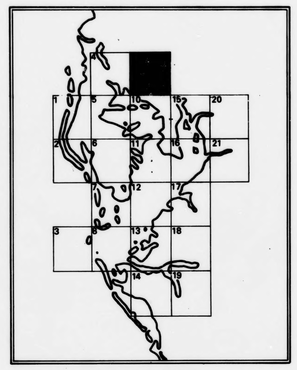
CITRUS PARK QUADRANGLE
FLORIDA - HILLSBOROUGH CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

MAP B9

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

CITRUS PARK



Scale 1:24,000

1984

TOPICAL MAPS IN THIS ATLAS:
A. BIOLOGICAL RESOURCES
B. WATER RESOURCES

Produced by U.S. Fish and Wildlife Service
Projection and 1,000 meter grid, zone 17: Universal Transverse Mercator
10,000 foot grid ticks based on Florida coordinate system, east and west zones

Overlay material compiled in 1984 from latest available data obtained from Federal, State and Local government agencies and other sources.

There is no map A19 due to a lack of data.

LEGEND

35 — MEAN ANNUAL MID-DEPTH SPECIFIC CONDUCTIVITY ISOPLETH (WATER QUALITY) CONTOUR MAP
Five year mean annual specific conductivity September 1978 - August 1983 (mmhos)

POINT SOURCE DISCHARGES *

10 Q=__ Industrial Point Source Discharge. Q is permitted capacity in total gallons per day (tgd) or in millions of gallons per day (mgd).

10 Q=__ Municipal Point Source Discharge. Q is permitted capacity in total gallons per day (tgd) or millions of gallons per day (mgd).

Dredge Spoil Area — DREDGE SPOIL DISPOSAL SITES

TIDE STATION *
(National Ocean Service)

10 Active tide station. The tide station number is listed next to the symbol.

10 Inactive tide station location. The tide station number is listed next to the symbol.

10 WATER QUALITY SAMPLING STATION *
(Hillsborough County Environmental Protection Commission)
Five year seasonal means, Sept. 1978 - Aug. 1983

2 — BATHYMETRY
The contour interval is 2.0 meters with an initial 1.0 meter supplemental contour line added to better define shoals and inshore tidal flats.

INTERTIDAL ZONE
This zone demarcates the area exposed and flooded by the tides and occurs between the line and the shore.

GENERALIZED SEDIMENT MAP
- Sand
- Shelly Sand
- Silty Sand
- Clayey Sand
- Sandy Clay
- Silt

NET TIDAL CURRENT
Resultant tidal current. The direction is indicated by the arrow and the discharge range is feet per second
- 0.01 - 0.10 ft/sec
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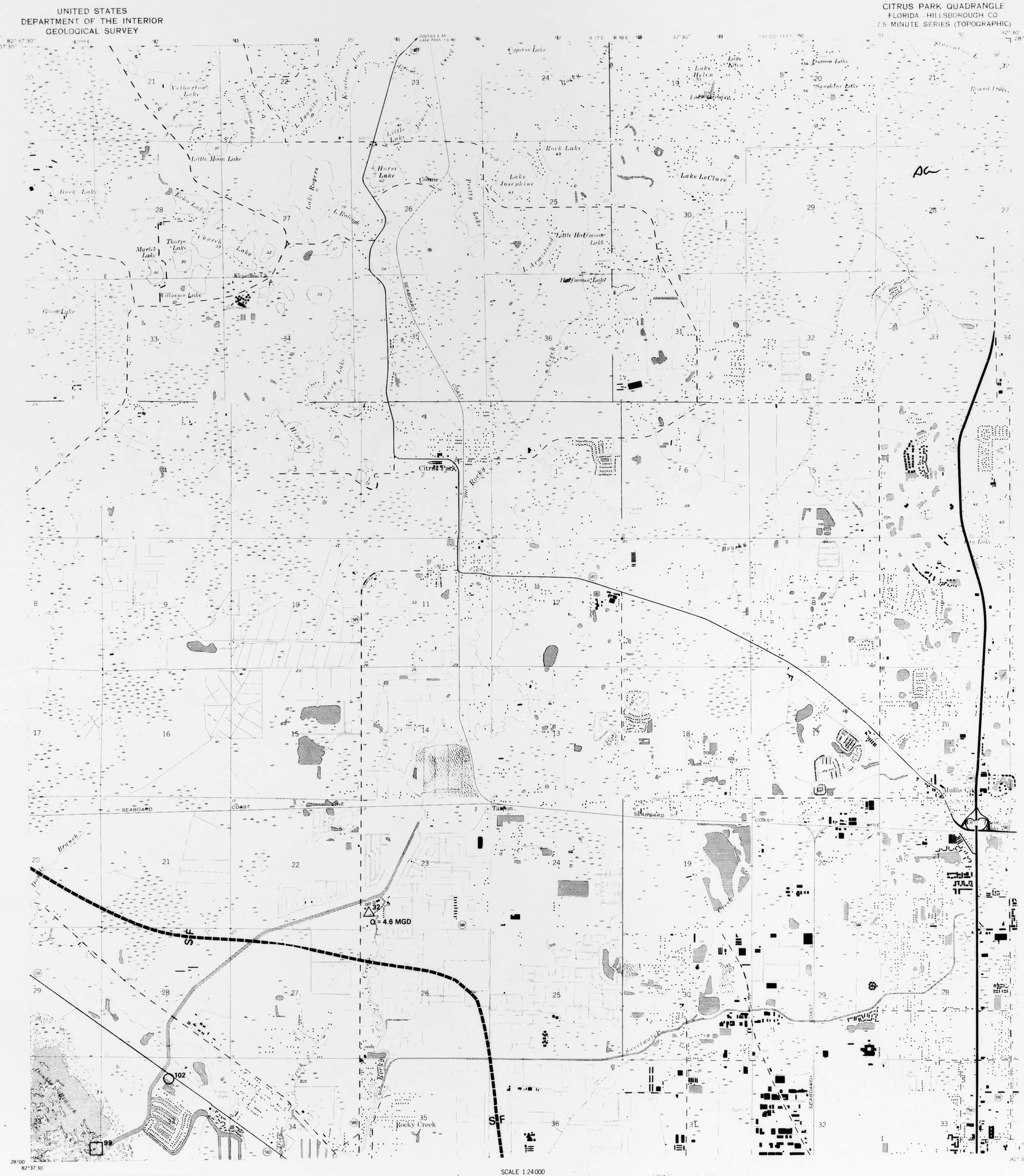
F / S — FRESHWATER/SALTWATER INTERFACE
(U.S. Geological Survey 1979)
250 mg/l line of equal chloride concentration in the upper part of Floridan aquifer.

*Symbols appearing with numbers are described more fully in the narrative



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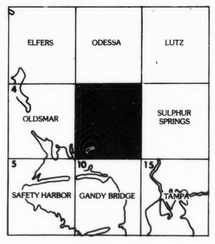
FOR COMPLETE REFERENCE SEE MAP NARRATIVE



Note: Specific conductivity values on the supplemental legend should be in µmhos.

Supplemental Legend for Water Quality Stations on This Map

Station #102 Lat. 28°00'32" Long. 82°36'28"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	28.2	55.0	47.2	32.9	40.6
Conductivity (mmhos)	30800	25514	23737	28969	27827
Turbidity (JRTU'S)	8.8	8.1	5.8	5.3	8.0
Temperature (°C)	23.5	29.4	24.9	15.9	23.4
Total Nitrogen (mg/l)	1.05	<0.05	1.27	0.81	0.99

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I 49.89/2:03 (13) map B10

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

GANDY BRIDGE QUADRANGLE
FLORIDA
7.5 MINUTE SERIES (TOPOGRAPHIC)

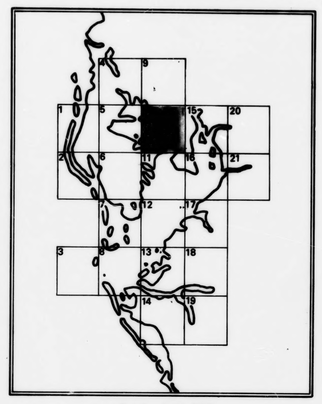
MAP B10

ORIGINAL

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

GANDY BRIDGE



Scale 1:24,000

1984

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B. WATER RESOURCES

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- Silt

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(U.S. Geological Survey 1979)
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1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER

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FOR COMPLETE REFERENCE SEE MAP NARRATIVE

Supplemental Legend (Cont'd)

Station #50 Lat. 27°55'07" Long. 82°32'18"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	20.3	29.0	29.2	15.8	23.8
Conductivity (mmhos)	39533	38489	36800	42033	39314
Turbidity (NTU'S)	3.3	3.8	2.8	2.0	3.0
Temperature (°C)	22.2	29.7	25.1	15.8	23.2
Total Nitrogen (mg/l)	0.89	0.83	0.71	0.54	0.69

Station #51 Lat. 27°53'30" Long. 82°32'35"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	27.5	33.8	30.3	18.1	27.4
Conductivity (mmhos)	40817	38285	37550	42833	39818
Turbidity (NTU'S)	4.4	3.9	2.7	2.4	3.4
Temperature (°C)	22.0	29.5	24.8	15.4	23.0
Total Nitrogen (mg/l)	0.72	0.80	0.87	0.63	0.76

Station #61 Lat. 27°58'06" Long. 82°33'37"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	22.9	32.7	37.0	20.8	28.4
Conductivity (mmhos)	37400	33471	33650	37800	35680
Turbidity (NTU'S)	4.8	5.0	4.3	2.9	4.2
Temperature (°C)	22.0	29.0	24.7	15.8	22.9
Total Nitrogen (mg/l)	0.76	1.09	1.13	0.92	0.98

Station #62 Lat. 27°58'16" Long. 82°34'22"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	28.0	34.7	38.5	23.4	30.8
Conductivity (mmhos)	34300	30325	30517	35167	32577
Turbidity (NTU'S)	6.3	7.1	4.5	4.5	5.6
Temperature (°C)	22.0	28.8	24.4	15.1	22.5
Total Nitrogen (mg/l)	0.83	1.09	1.13	0.81	0.96

Station #63 Lat. 27°58'08" Long. 82°34'40"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	22.3	25.9	30.4	17.5	24.0
Conductivity (mmhos)	38287	36748	35383	40800	37800
Turbidity (NTU'S)	4.7	4.8	3.2	2.3	3.8
Temperature (°C)	22.4	30.1	25.2	16.0	23.4
Total Nitrogen (mg/l)	0.59	0.94	1.04	0.60	0.79

Station #67 Lat. 27°54'02" Long. 82°35'53"

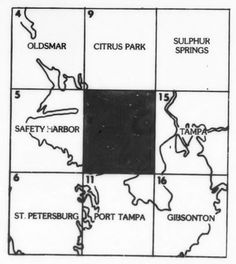
PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	26.4	35.8	31.8	19.0	28.2
Conductivity (mmhos)	36950	37081	35433	38300	37081
Turbidity (NTU'S)	4.8	8.8	4.4	3.0	4.8
Temperature (°C)	21.7	28.1	24.6	15.1	22.6
Total Nitrogen (mg/l)	0.89	0.87	1.01	0.75	0.83

Station #103 Lat. 27°59'47" Long. 82°35'12"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	32.3	28.2	21.3	21.8	25.9
Conductivity (mmhos)	11828	10047	7262	12158	10318
Turbidity (NTU'S)	8.8	4.8	6.1	8.2	8.0
Temperature (°C)	23.2	28.2	24.8	16.5	23.2
Total Nitrogen (mg/l)	1.40	1.59	1.37	1.82	1.48

Station #104 Lat. 27°58'06" Long. 82°33'17"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	39.0	34.9	30.1	22.8	31.7
Conductivity (mmhos)	15777	8727	11288	10848	13865
Turbidity (NTU'S)	8.5	8.3	6.7	6.8	7.5
Temperature (°C)	22.0	28.1	24.3	16.0	22.8
Total Nitrogen (mg/l)	1.34	1.40	1.26	1.14	1.28



Note: Specific conductivity values on the supplemental legend should be in µmhos.

Supplemental Legend for Water Quality Stations on This Map

Station #38 Lat. 27°52'54" Long. 82°34'40"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	24.1	31.0	30.7	16.4	25.0
Conductivity (mmhos)	39700	37836	36583	40542	38865
Turbidity (NTU'S)	3.9	3.9	3.2	2.4	3.4
Temperature (°C)	21.9	29.3	24.8	15.2	22.8
Total Nitrogen (mg/l)	0.82	0.80	0.88	0.45	0.69

Station #40 Lat. 27°55'45" Long. 82°35'00"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	25.0	28.0	39.1	18.2	28.8
Conductivity (mmhos)	33187	37057	35283	40533	38010
Turbidity (NTU'S)	4.5	5.0	3.2	2.1	3.7
Temperature (°C)	21.6	29.0	24.7	15.4	22.7
Total Nitrogen (mg/l)	0.69	0.86	0.85	0.58	0.74

Station #41 Lat. 27°56'15" Long. 82°33'54"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	21.8	28.8	31.0	15.2	24.2
Conductivity (mmhos)	39117	37185	36087	41633	38340
Turbidity (NTU'S)	4.2	3.7	3.2	1.9	3.2
Temperature (°C)	22.0	29.7	25.0	15.6	23.1
Total Nitrogen (mg/l)	0.59	0.73	0.81	0.49	0.66

Station #47 Lat. 27°58'20" Long. 82°37'19"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	22.3	28.4	31.4	18.5	27.4
Conductivity (mmhos)	37267	35371	33833	39300	36488
Turbidity (NTU'S)	5.8	5.8	3.8	2.6	4.4
Temperature (°C)	21.6	28.9	24.2	14.8	22.4
Total Nitrogen (mg/l)	0.85	0.85	0.87	0.67	0.81

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I 49.89/2:85(15) map B11

ORIGINAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

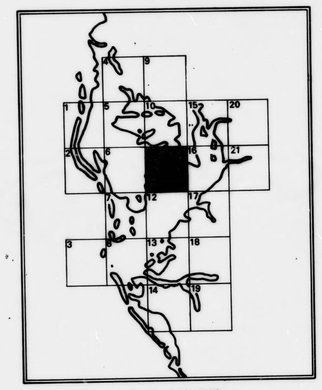
PORT TAMPA QUADRANGLE
FLORIDA
7.5 MINUTE SERIES (TOPOGRAPHIC)

MAP B11

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

PORT TAMPA



Scale 1:24,000

1984

TOPICAL MAPS IN THIS ATLAS:
A. BIOLOGICAL RESOURCES
B. WATER RESOURCES

Produced by U.S. Fish and Wildlife Service
Projection and 1,000 meter grid, zone 17: Universal Transverse Mercator
10,000-foot grid ticks based on Florida coordinate system, east and west zones

Overlay material compiled in 1984 from latest available data obtained from Federal, State and Local government agencies and other sources.

There is no map A19 due to a lack of data.

LEGEND

35 — MEAN ANNUAL MID-DEPTH SPECIFIC CONDUCTIVITY ISOPLETH (WATER QUALITY) CONTOUR MAP
Five year mean annual specific conductivity September 1978 - August 1983 (mmhos)

POINT SOURCE DISCHARGES *

10 Q=___ Industrial Point Source Discharge. Q is permitted capacity in total gallons per day (tgd) or in millions of gallons per day (mgd).

10 Q=___ Municipal Point Source Discharge. Q is permitted capacity in total gallons per day (tgd) or millions of gallons per day (mgd).

DREDGE SPOIL DISPOSAL SITES

TIDE STATION *
(National Ocean Service)

10 Active tide station. The tide station number is listed next to the symbol.

10 Inactive tide station location. The tide station number is listed next to the symbol.

10 WATER QUALITY SAMPLING STATION *
(Hillsborough County Environmental Protection Commission)
Five year seasonal means, Sept. 1978 - Aug. 1983

2 BATHYMETRY
The contour interval is 2.0 meters with an initial 1.0 meter supplemental contour line added to better define shoals and inshore tidal flats.

INTERTIDAL ZONE
This zone demarcates the area exposed and flooded by the tides and occurs between the line and the shore.

GENERALIZED SEDIMENT MAP
- Sand
- Shelly Sand
- Silty Sand
- Clayey Sand
- Sandy Clay
- Silt

NET TIDAL CURRENT
Resultant tidal current. The direction is indicated by the arrow and the discharge range is feet per second
- 0.01 - 0.10 ft/sec
- 0.11 - 0.20 ft/sec
- 0.21 - 0.30 ft/sec
- 0.31 - 0.50 ft/sec
- > 0.50 ft/sec

F / S FRESHWATER/SALTWATER INTERFACE
(U.S. Geological Survey 1979)
250 mg/l line of equal chloride concentration in the upper part of Floridan aquifer.

*Symbols appearing with numbers are described more fully in the narrative

SCALE 1:24000

1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 KILOMETER

THE TAMPA BAY ENVIRONMENTAL ATLAS WAS PRODUCED BY THE U.S. FISH AND WILDLIFE SERVICE, DIVISION OF BIOLOGICAL SERVICES NATIONAL COASTAL ECOSYSTEMS TEAM (FWS/OBS) FOR COASTAL PLANNERS, DECISION MAKERS AND THE GENERAL PUBLIC. TO DETERMINE AND EVALUATE CHANGE AND TO RESOLVE CONFLICTS AMONG LAND USES, FISH AND WILDLIFE REQUIREMENTS, AND THE MAINTENANCE OF ECOLOGICAL DIVERSITY. THE STUDY AREA INCLUDES A MAJOR PORTION OF THE COASTAL COUNTIES OF PINELLAS, HILLSBOROUGH, MANATEE, AND A SMALL PORTION OF SAPASOTA. THERE IS NO ATTEMPT, IN THE DESIGN OR PRODUCTS OF THIS STUDY, TO DEFINE THE LIMITS OF PROPRIETARY JURISDICTION OF ANY FEDERAL, STATE, OR LOCAL GOVERNMENT TO ESTABLISH THE GEOGRAPHICAL SCOPE OF THE REGULATORY PROGRAMS OF GOVERNMENT AGENCIES.

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POINT SOURCE DISCHARGES: Computer printout of industrial and municipal point source discharges in West Central Florida. Florida Dept. of Environmental Regulation, 1983.

DREDGE SPOIL DISPOSAL AREAS: Dredge and Spoil easement location maps. Florida Dept. of Natural Resources.

N.O.S. TIDE STATIONS: Index of tide stations for the state of Florida. National Ocean Service, Rockville, Md. 1981.

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BATHYMETRIC: Bathymetric map to St. Petersburg Quadrangle, N.O.S. 1978.

INTERTIDAL ZONE: Nautical Chart #'s 11410, 11413, 11414 and 11425. N.O.S., Rockville, Md. 1983.

SEDIMENTS: Sediments, oceanographic observations and Floristic data for Tampa Bay, Florida and adjacent waters. 1961-1966. Taylor and Saloman, 1969.

TIDAL CURRENTS: Changes in tidal flow, circulation and flushing caused by dredge and fill in Tampa Bay, Florida. U.S. Geological Survey Open File Report #84-447. Goodwin, 1984.

FRESHWATER-SALTWATER INTERFACE: Position of the Freshwater-Saltwater interface in the upper part of the Floridan aquifer, Southwest Florida, 1979. U.S.G.S. water resources open-file report 82-90. Causseaux and Fretwell, 1982.

FOR COMPLETE REFERENCE SEE MAP NARRATIVE

Selected areas on this U.S.G.S. base map updated using information extracted from aerial photography. This information not field checked.

Supplemental Legend (Cont'd)

Station #33 — Lat. 27°48'14" — Long. 82°34'16"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	27.9	32.8	28.9	18.3	27.0
Conductivity (mmhos)	41980	38863	38317	42400	40550
Turbidity (NTU'S)	4.6	3.2	2.8	2.9	3.4
Temperature (°C)	21.8	29.1	24.9	15.3	22.8
Total Nitrogen (mg/l)	0.62	0.73	0.68	0.55	0.69

Station #38 — Lat. 27°51'35" — Long. 82°33'13"

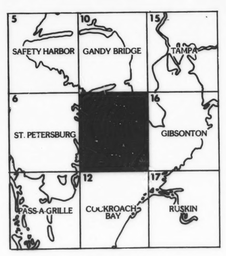
PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	27.5	42.0	30.4	37.0	31.7
Conductivity (mmhos)	40833	38664	37900	43200	40359
Turbidity (NTU'S)	4.0	4.2	2.9	2.4	3.4
Temperature (°C)	21.7	29.1	24.8	15.5	22.8
Total Nitrogen (mg/l)	0.63	0.71	0.84	0.48	0.66

Station #68 — Lat. 27°51'32" — Long. 82°35'05"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	28.1	36.8	34.0	19.7	29.2
Conductivity (mmhos)	40533	38813	36833	41267	39012
Turbidity (NTU'S)	4.2	4.7	4.0	2.5	3.6
Temperature (°C)	21.9	29.3	24.9	15.0	22.8
Total Nitrogen (mg/l)	0.71	0.71	0.95	0.67	0.76

Station #82 — Lat. 27°45'03" — Long. 82°34'20"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	30.8	33.2	28.8	14.9	26.4
Conductivity (mmhos)	43300	41738	39667	45167	42450
Turbidity (NTU'S)	4.5	5.5	4.0	3.7	4.4
Temperature (°C)	22.0	29.7	25.3	16.5	23.8
Total Nitrogen (mg/l)	0.55	0.70	0.84	0.48	0.64



Note: Specific conductivity values on the supplemental legend should be in µmhos.

Supplemental Legend for Water Quality Stations on This Map

Station #13 — Lat. 27°48'45" — Long. 82°31'25"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	27.8	33.3	34.1	18.1	28.3
Conductivity (mmhos)	41250	40792	39100	36073	39283
Turbidity (NTU'S)	3.8	4.1	2.8	2.8	3.4
Temperature (°C)	21.9	29.2	24.9	15.5	22.9
Total Nitrogen (mg/l)	0.77	0.81	0.82	0.58	0.75

Station #14 — Lat. 27°48'55" — Long. 82°31'25"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	31.5	32.3	24.9	20.2	27.2
Conductivity (mmhos)	43787	42317	39800	43533	42384
Turbidity (NTU'S)	4.6	5.6	2.8	3.3	4.0
Temperature (°C)	22.1	29.2	25.7	16.8	23.4
Total Nitrogen (mg/l)	0.93	0.75	0.95	0.58	0.80

Station #32 — Lat. 27°47'34" — Long. 82°34'15"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	28.2	33.5	27.5	18.0	26.8
Conductivity (mmhos)	41950	39533	39400	44800	41221
Turbidity (NTU'S)	4.7	4.0	2.8	2.7	3.6
Temperature (°C)	21.8	29.0	24.8	15.5	22.8
Total Nitrogen (mg/l)	0.67	0.79	0.88	0.54	0.72

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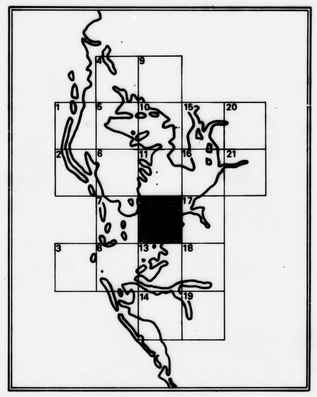
COCKROACH BAY QUADRANGLE
FLORIDA
7.5 MINUTE SERIES (TOPOGRAPHIC)

MAP B12

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

COCKROACH BAY



Scale 1:24,000

1984

TOPICAL MAPS IN THIS ATLAS:
A. BIOLOGICAL RESOURCES
B. WATER RESOURCES

Produced by U.S. Fish and Wildlife Service
Projection and 1,000 meter grid, zone 17: Universal Transverse Mercator
10,000-foot grid ticks based on Florida coordinate system, east and west zones

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There is no map A19 due to a lack of data.

LEGEND

35 — MEAN ANNUAL MID-DEPTH SPECIFIC CONDUCTIVITY ISOPLETH (WATER QUALITY) CONTOUR MAP
Five year mean annual specific conductivity September 1978 - August 1983 (mmhos)

POINT SOURCE DISCHARGES *

10 Q=___ Industrial Point Source Discharge. Q is permitted capacity in total gallons per day (tgd) or in millions of gallons per day (mgd).

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Dredge Spoil Area — DREDGE SPOIL DISPOSAL SITES

TIDE STATION *
(National Ocean Service)

10 Active tide station. The tide station number is listed next to the symbol.

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(Hillsborough County Environmental Protection Commission)
Five year seasonal means, Sept. 1978 - Aug. 1983

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GENERALIZED SEDIMENT MAP
- Sand
- Shelly Sand
- Silty Sand
- Clayey Sand
- Sandy Clay
- Silt

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Resultant tidal current. The direction is indicated by the arrow and the discharge range is feet per second
- 0.01 - 0.10 ft/sec
- 0.11 - 0.20 ft/sec
- 0.21 - 0.30 ft/sec
- 0.31 - 0.50 ft/sec
- > 0.50 ft/sec

F / S — FRESHWATER/SALTWATER INTERFACE
(U.S. Geological Survey 1979)
250 mg/l line of equal chloride concentration in the upper part of Floridan aquifer.

*Symbols appearing with numbers are described more fully in the narrative

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BATHYMETRIC: Bathymetric map to St. Petersburg Quadrangle, N.O.S. 1978.

INTERTIDAL ZONE: Nautical Chart #'s 11410, 11413, 11414 and 11425. N.O.S., Rockville, Md. 1983.

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FOR COMPLETE REFERENCE SEE MAP NARRATIVE

SCALE 1:24 000
1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 KILOMETER

Supplemental Legend (Cont'd)

Station #23 — Lat. 27°39'50" — Long. 82°35'52"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	20.8	19.1	20.6	11.7	17.3
Conductivity (mmhos)	47100	47460	46366	50283	47802
Turbidity (NTU'S)	4.0	2.2	3.7	3.4	3.3
Temperature (°C)	27.2	29.7	25.4	16.5	23.4
Total Nitrogen (mg/l)	0.60	0.53	0.60	0.42	0.54

Station #28 — Lat. 27°42'28" — Long. 82°36'34"

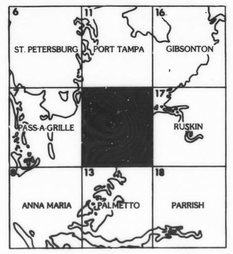
PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	24.6	28.5	29.8	14.6	23.8
Conductivity (mmhos)	47333	44044	41833	47858	46242
Turbidity (NTU'S)	5.1	4.6	3.8	3.2	4.2
Temperature (°C)	22.8	29.5	25.4	16.7	23.8
Total Nitrogen (mg/l)	0.53	0.86	0.76	0.51	0.81

Station #84 — Lat. 27°44'30" — Long. 82°30'12"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	31.5	41.8	30.4	18.8	30.8
Conductivity (mmhos)	40965	41011	38767	41972	40670
Turbidity (NTU'S)	6.8	8.5	4.3	4.5	6.0
Temperature (°C)	22.4	29.1	24.5	16.1	23.0
Total Nitrogen (mg/l)	0.76	0.95	1.45	0.57	0.93

Station #138 — Lat. 27°40'30" — Long. 82°30'15"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	28.1	41.5	43.7	42.8	39.0
Conductivity (mmhos)	30377	35805	24004	29448	29708
Turbidity (NTU'S)	5.2	8.8	5.8	4.5	5.5
Temperature (°C)	25.2	30.0	28.1	17.7	24.8
Total Nitrogen (mg/l)	1.26	1.36	1.37	1.29	1.32



Note: Specific conductivity values on the supplemental legend should be in µmhos.

Supplemental Legend for Water Quality Stations on This Map

Station #16 — Lat. 27°43'21" — Long. 82°32'05"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	23.9	20.2	20.8	18.1	20.2
Conductivity (mmhos)	42650	44238	42833	45308	43787
Turbidity (NTU'S)	5.1	3.5	3.8	4.1	4.1
Temperature (°C)	22.2	29.5	24.8	18.1	23.2
Total Nitrogen (mg/l)	0.89	0.85	0.81	0.53	0.87

Station #19 — Lat. 27°41'59" — Long. 82°32'59"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	23.5	17.1	20.3	14.0	18.7
Conductivity (mmhos)	44267	45482	43888	46913	45082
Turbidity (NTU'S)	4.5	3.1	2.9	2.8	3.4
Temperature (°C)	22.2	29.5	24.8	18.3	23.2
Total Nitrogen (mg/l)	0.90	0.82	0.76	0.41	0.97

Station #21 — Lat. 27°40'08" — Long. 82°33'04"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	21.4	19.4	21.8	12.8	18.8
Conductivity (mmhos)	46400	46864	46568	48157	46519
Turbidity (NTU'S)	4.7	8.8	3.8	3.3	4.7
Temperature (°C)	22.2	29.8	25.1	18.3	23.3
Total Nitrogen (mg/l)	0.41	0.54	0.87	0.38	0.55

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STATE OF FLORIDA

PALMETTO QUADRANGLE
FLORIDA
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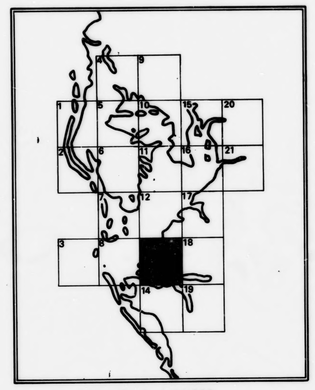
MAP B13

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

PALMETTO



Scale 1:24,000

1984

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Produced by U.S. Fish and Wildlife Service
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10,000-foot grid ticks based on Florida coordinate system, east and west zones

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LEGEND

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Five year mean annual specific conductivity September 1978 - August 1983 (mmhos)

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Dredge Spoil Area — DREDGE SPOIL DISPOSAL SITES

TIDE STATION * (National Ocean Service)

10 Active tide station. The tide station number is listed next to the symbol.

10 Inactive tide station location. Tne tide station number is listed next to the symbol.

10 WATER QUALITY SAMPLING STATION * (Hillsborough County Environmental Protection Commission)
Five year seasonal means, Sept. 1978 - Aug. 1983

2 — BATHYMETRY
The contour interval is 2.0 meters with an initial 1.0 meter supplemental contour line added to better define shoals and inshore tidal flats.

INTERTIDAL ZONE
This zone demarcates the area exposed and flooded by the tides and occurs between the line and the shore.

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- Sand
- Shelly Sand
- Silty Sand
- Clayey Sand
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Resultant tidal current. The direction is indicated by the arrow and the discharge range is feet per second
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- 0.11 - 0.20 ft/sec
- 0.21 - 0.30 ft/sec
- 0.31 - 0.50 ft/sec
- > 0.50 ft/sec

F / S — FRESHWATER/SALTWATER INTERFACE
(U.S. Geological Survey 1979)
250 mg/l line of equal chloride concentration in the upper part of Floridan aquifer.

*Symbols appearing with numbers are described more fully in the narrative

SCALE 1:24 000

1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 KILOMETER

THE TAMPA BAY ENVIRONMENTAL ATLAS WAS PRODUCED BY THE U.S. FISH AND WILDLIFE SERVICE, DIVISION OF BIOLOGICAL SERVICES NATIONAL COASTAL ECOSYSTEMS TEAM (FWS/OBS) FOR COASTAL PLANNERS, DECISION MAKERS AND THE GENERAL PUBLIC. TO DETERMINE AND EVALUATE CHANGE AND TO RESOLVE CONFLICTS AMONG LAND USES, FISH AND WILDLIFE REQUIREMENTS, AND THE MAINTENANCE OF ECOLOGICAL DIVERSITY. THE STUDY AREA INCLUDES A MAJOR PORTION OF THE COASTAL COUNTIES OF PINELLAS, HILLSBOROUGH, MANATEE, AND A SMALL PORTION OF SARASOTA. THERE IS NO ATTEMPT, IN THE DESIGN OR PRODUCTS OF THIS STUDY, TO DEFINE THE LIMITS OF PROPRIETARY JURISDICTION OF ANY FEDERAL, STATE, OR LOCAL GOVERNMENT TO ESTABLISH THE GEOGRAPHICAL SCOPE OF THE REGULATORY PROGRAMS OF GOVERNMENT AGENCIES.

THIS MAP HAS BEEN COMPILED FROM A VARIETY OF SOURCE MATERIALS INCLUDING MAPS, AERIAL PHOTOS, AND REPORTS. SINCE MANY SOURCES CONTAINED GENERALIZED LOCATIONS OF RESOURCES AND OTHER MAPPED FEATURES, THE USER SHOULD NOT RELY ON THESE MAPS FOR PRECISE MEASUREMENTS OF DISTANCES OR AREAS.

PRIMARY SOURCES OF MAPPED INFORMATION

SALINITY: Conductivity for Tampa Bay water quality sampling stations Sept. 1978 - August 1983. Hillsborough County Environmental Protection Commission.

POINT SOURCE DISCHARGES: Computer printout of industrial and municipal point source discharges in West Central Florida. Florida Dept. of Environmental Regulation, 1983.

DREDGE SPOIL DISPOSAL AREAS: Dredge and Spoil easement location maps. Florida Dept. of Natural Resources

N.O.S. TIDE STATIONS: Index of tide stations for the state of Florida. National Ocean Service, Rockville, Md. 1981.

WATER QUALITY: Total chlorophyll, conductivity, turbidity, temperature and total nitrogen data for Tampa Bay water quality stations, Sept. 1978 - August 1983. Hillsborough County Environmental Protection Commission.

BATHYMETRIC: Bathymetric map to St. Petersburg Quadrangle, N.O.S. 1978.

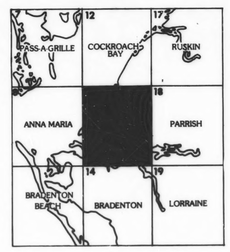
INTERTIDAL ZONE: Nautical Chart #'s 11410, 11413, 11414 and 11425. N.O.S., Rockville, Md. 1983.

SEDIMENTS: Sediments, oceanographic observations and Floridan data for Tampa Bay, Florida and adjacent waters, 1961-1965. Taylor and Saloman, 1969.

TIDAL CURRENTS: Changes in tidal flow, circulation and flushing caused by dredge and fill in Tampa Bay, Florida. U.S. Geological Survey Open File Report #84-447. Goodwin, 1984.

FRESHWATER-SALTWATER INTERFACE: Position of the Freshwater-Saltwater interface in the upper part of the Floridan aquifer, Southwest Florida, 1979. U.S.G.S. water resources open-file report 82-80. Causseaux and Fretwell, 1982.

FOR COMPLETE REFERENCE SEE MAP NARRATIVE



Note: Specific conductivity values on the supplemental legend should be in µmhos.

Supplemental Legend for Water Quality Stations on This Map

Station #24 — Lat. 27°35'01" — Long. 82°37'01"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	19.8	16.2	19.3	11.9	16.8
Conductivity (mmhos)	48833	48137	47066	48966	47845
Turbidity (NTU'S)	4.0	3.2	3.5	3.7	3.6
Temperature (°C)	22.7	29.4	24.9	18.5	23.4
Total Nitrogen (mg/l)	0.46	0.56	0.79	0.35	0.54

Station #80 — Lat. 27°37'24" — Long. 82°35'42"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	17.2	17.2	20.8	12.4	18.3
Conductivity (mmhos)	48833	48330	47433	48828	48056
Turbidity (NTU'S)	3.9	5.2	4.7	3.5	4.3
Temperature (°C)	22.4	29.5	25.2	18.3	23.4
Total Nitrogen (mg/l)	0.48	0.58	0.58	0.39	0.51

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I 49.89/2:B3(15)map B14

ORIGINAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF FLORIDA

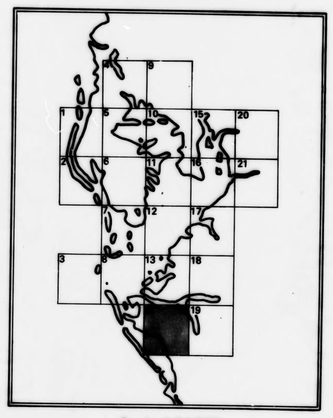
BRADENTON QUADRANGLE
FLORIDA
7.5 MINUTE SERIES (TOPOGRAPHIC)

MAP B14

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

BRADENTON



Scale 1:24,000

1984

TOPICAL MAPS IN THIS ATLAS:
A. BIOLOGICAL RESOURCES
B. WATER RESOURCES

Produced by U.S. Fish and Wildlife Service
Projection and 1,000 meter grid, zone 17: Universal Transverse Mercator
10,000-foot grid ticks based on Florida coordinate system, east and west zones

Overlay material compiled in 1984 from latest available data obtained from Federal, State and Local government agencies and other sources.

There is no map A19 due to a lack of data.

LEGEND

35 — MEAN ANNUAL MID-DEPTH SPECIFIC CONDUCTIVITY ISOPLETH (WATER QUALITY) CONTOUR MAP
Five year mean annual specific conductivity September 1978 - August 1983 (mmhos)

POINT SOURCE DISCHARGES *

10 Q=___ — Industrial Point Source Discharge. Q is permitted capacity in total gallons per day (tgd) or in millions of gallons per day (mgd).

10 Q=___ — Municipal Point Source Discharge. Q is permitted capacity in total gallons per day (tgd) or millions of gallons per day (mgd).

Dredge Spoil Area — DREDGE SPOIL DISPOSAL SITES

TIDE STATION *
(National Ocean Service)

10 — Active tide station. The tide station number is listed next to the symbol.

10 — Inactive tide station location. The tide station number is listed next to the symbol.

10 — WATER QUALITY SAMPLING STATION *
(Hillsborough County Environmental Protection Commission)
Five year seasonal means. Sept. 1978 - Aug. 1983

2 — BATHYMETRY
The contour interval is 2.0 meters with an initial 1.0 meter supplemental contour line added to better define shoals and inshore tidal flats.

INTERTIDAL ZONE
This zone demarcates the area exposed and flooded by the tides and occurs between the line and the shore.

GENERALIZED SEDIMENT MAP
- Sand
- Shelly Sand
- Silty Sand
- Clayey Sand
- Sandy Clay
- Silt

NET TIDAL CURRENT
Resultant tidal current. The direction is indicated by the arrow and the discharge range is feet per second
- 0.01 - 0.10 ft/sec
- 0.11 - 0.20 ft/sec
- 0.21 - 0.30 ft/sec
- 0.31 - 0.50 ft/sec
- > 0.50 ft/sec

F / S — FRESHWATER/SALTWATER INTERFACE
(U.S. Geological Survey 1979)
250 mg/l line of equal chloride concentration in the upper part of Floridan aquifer.

*Symbols appearing with numbers are described more fully in the narrative

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INTERTIDAL ZONE: Nautical Chart #'s 11410, 11413, 11414 and 11425. N.O.S., Rockville, Md. 1983.

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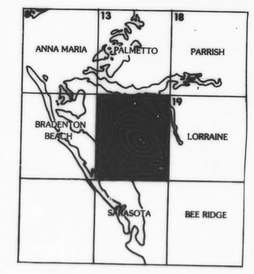
FOR COMPLETE REFERENCE SEE MAP NARRATIVE

SCALE 1:24000

1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER



Note: Specific conductivity values on the supplemental legend should be in µmhos.

MICROFILMED FROM
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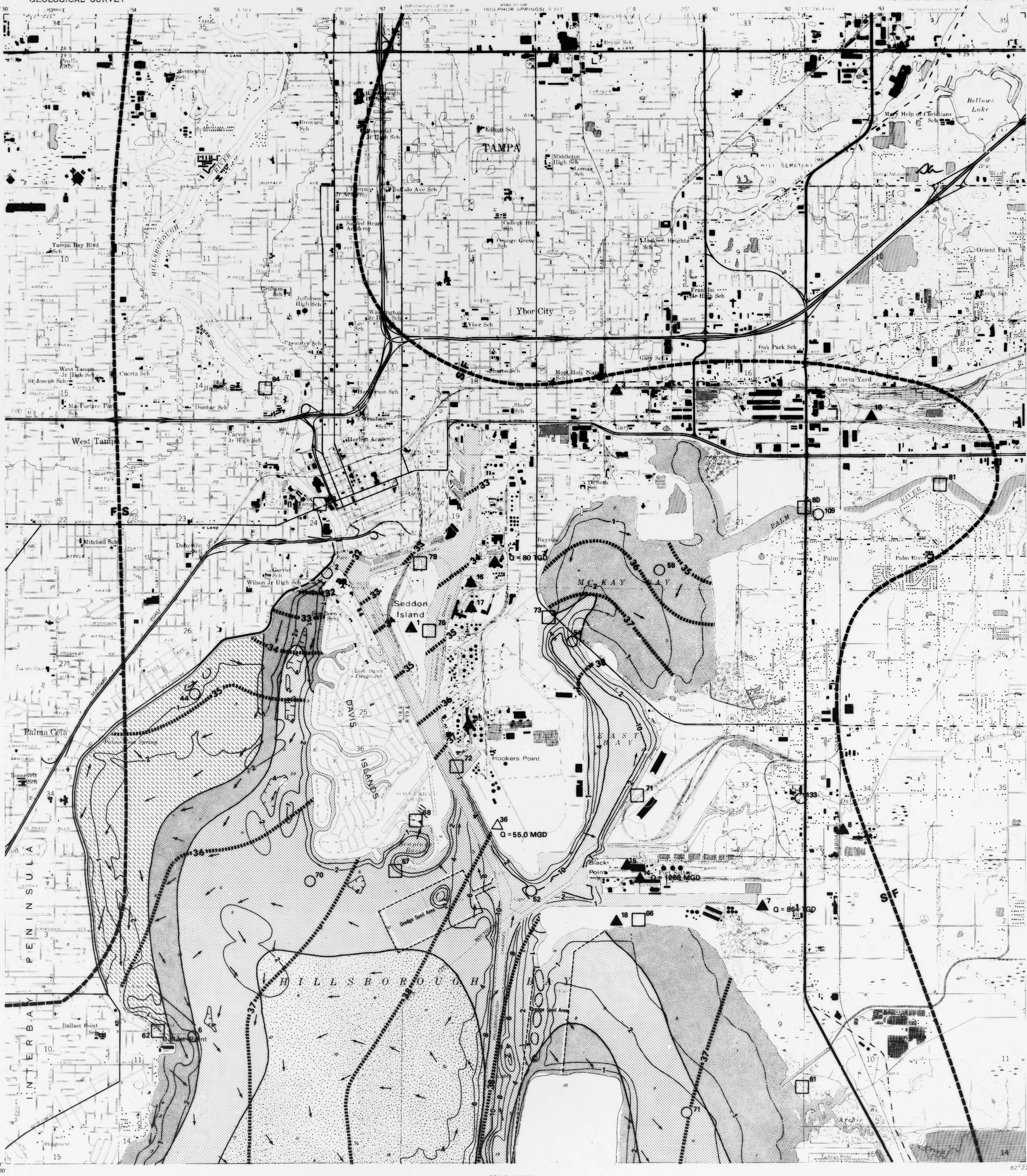
I 49.0/2:85(15) map.

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

TAMPA QUADRANGLE
FLORIDA–HILLSBOROUGH CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



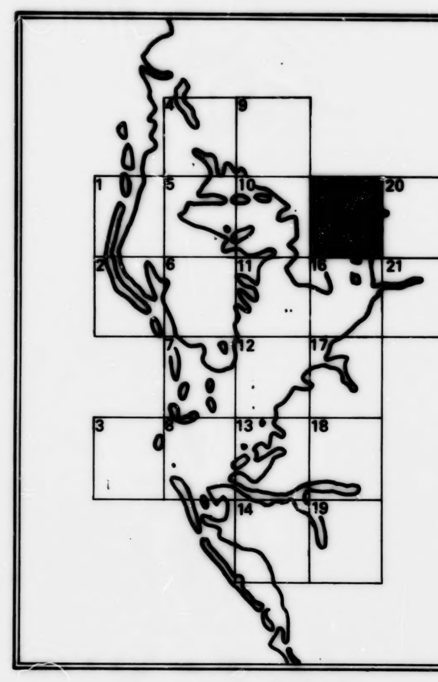
MAP B15

ORIGINAL

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

TAMPA



Scale 1:24,000

1984

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A. BIOLOGICAL RESOURCES
B. WATER RESOURCES

Produced by U.S. Fish and Wildlife Service
Projection and 1,000 meter grid, zone 17: Universal Transverse Mercator
10,000-foot grid ticks based on Florida coordinate system, east and west zones

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There is no map A19 due to a lack of data.

LEGEND

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Five year mean annual specific conductivity September 1978 - August 1983 (mmhos)

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DREDGE SPOIL DISPOSAL SITES

TIDE STATION *
(National Ocean Service)

Active tide station. The tide station number is listed next to the symbol.

Inactive tide station location. The tide station number is listed next to the symbol.

WATER QUALITY SAMPLING STATION *
(Hillsborough County Environmental Protection Commission)
Five year seasonal means, Sept. 1978 - Aug. 1983

BATHYMETRY
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GENERALIZED SEDIMENT MAP
- Sand
- Shelly Sand
- Silty Sand
- Clayey Sand
- Sandy Clay
- Silt

NET TIDAL CURRENT
Resultant tidal current. The direction is indicated by the arrow and the discharge range is feet per second
- 0.01 - 0.10 ft/sec
- 0.11 - 0.20 ft/sec
- 0.21 - 0.30 ft/sec
- 0.31 - 0.50 ft/sec
- >0.50 ft/sec

F/S FRESHWATER/SALTWATER INTERFACE
(U.S. Geological Survey 1979)
250 mg/l line of equal chloride concentration in the upper part of Floridan aquifer.

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DREDGE SPOIL DISPOSAL AREAS: Dredge and Spoil easement location maps. Florida Dept. of Natural Resources

Selected areas on this U.S.G.S. base map updated using information extracted from aerial photography. This information not field checked.

N.O.S. TIDE STATIONS: Index of tide stations for the state of Florida. National Ocean Service, Rockville, Md. 1981.

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FOR COMPLETE REFERENCE SEE MAP NARRATIVE

Supplemental Legend (Cont'd)

Station #54 Lat. 27°55'59" Long. 82°25'57"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	31.9	37.0	31.1	25.8	31.4
Conductivity (mmhos)	38133	37983	38625	41383	38531
Turbidity (NTU'S)	4.8	3.7	3.6	4.6	4.2
Temperature (°C)	22.5	30.0	26.0	17.3	24.0
Total Nitrogen (mg/l)	1.01	1.35	1.16	0.82	1.09

Station #58 Lat. 27°56'20" Long. 82°25'07"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	46.3	61.5	42.0	49.2	49.8
Conductivity (mmhos)	33593	35883	32933	39033	35380
Turbidity (NTU'S)	8.2	5.5	5.4	6.1	6.3
Temperature (°C)	22.8	29.9	26.0	17.5	24.0
Total Nitrogen (mg/l)	1.18	1.34	1.31	0.98	1.20

Station #70 Lat. 27°54'26" Long. 82°27'48"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	47.5	83.2	53.2	38.4	55.1
Conductivity (mmhos)	35000	32950	33100	39033	35396
Turbidity (NTU'S)	5.9	5.4	4.4	5.3	5.2
Temperature (°C)	22.2	28.9	25.9	17.3	23.6
Total Nitrogen (mg/l)	1.32	1.33	1.52	0.88	1.20

Station #71 Lat. 27°52'47" Long. 82°25'00"

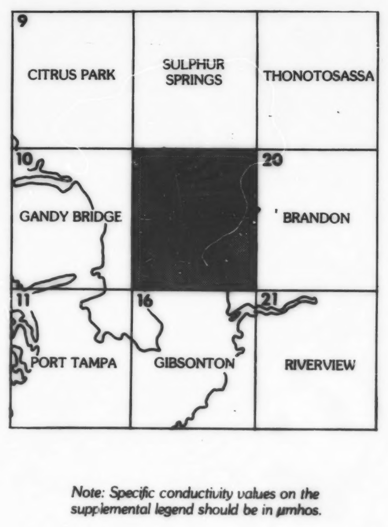
PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	37.4	70.9	38.7	32.4	44.4
Conductivity (mmhos)	36733	38017	35500	40833	37271
Turbidity (NTU'S)	14.1	7.7	7.0	9.2	9.5
Temperature (°C)	22.6	29.8	25.9	17.1	23.9
Total Nitrogen (mg/l)	1.15	1.24	1.29	0.81	1.12

Station #109 Lat. 27°56'59" Long. 82°24'06"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	45.7	44.1	32.6	42.9	41.3
Conductivity (mmhos)	21886	23743	18973	28995	23399
Turbidity (NTU'S)	3.4	3.9	3.3	3.8	3.6
Temperature (°C)	23.2	28.8	24.5	15.9	23.1
Total Nitrogen (mg/l)	1.30	1.38	1.49	1.14	1.32

Station #133 Lat. 27°54'54" Long. 82°24'08"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	48.9	37.0	32.0	16.8	33.2
Conductivity (mmhos)	5871	6651	4421	4407	5412
Turbidity (NTU'S)	8.9	8.0	6.7	4.8	7.1
Temperature (°C)	21.9	28.8	23.8	14.7	21.8
Total Nitrogen (mg/l)	—	—	—	—	—



Note: Specific conductivity values on the supplemental legend should be in µmhos.

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Supplemental Legend for Water Quality Stations on This Map

Station #2 Lat. 27°56'25" Long. 82°27'42"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	31.0	27.5	22.9	25.3	26.7
Conductivity (mmhos)	31267	29866	28466	37300	31675
Turbidity (NTU'S)	4.8	4.9	5.8	5.0	5.1
Temperature (°C)	22.4	29.2	25.0	17.7	23.7
Total Nitrogen (mg/l)	1.15	1.43	1.31	0.94	1.21

Station #6 Lat. 27°53'20" Long. 82°28'38"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	42.3	59.6	37.7	35.6	43.8
Conductivity (mmhos)	36200	35483	34033	40850	36667
Turbidity (NTU'S)	8.7	5.7	4.4	5.6	6.1
Temperature (°C)	21.9	29.1	25.6	17.1	23.4
Total Nitrogen (mg/l)	1.28	1.28	1.33	0.90	1.20

Station #44 Lat. 27°55'38" Long. 82°28'37"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	37.8	57.1	45.7	32.6	43.3
Conductivity (mmhos)	34667	32400	32609	39167	34056
Turbidity (NTU'S)	6.0	4.8	4.2	5.7	5.2
Temperature (°C)	21.9	28.6	25.5	17.0	23.2
Total Nitrogen (mg/l)	1.11	1.32	1.44	0.82	1.17

Station #52 Lat. 27°54'15" Long. 82°26'07"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	48.8	48.3	38.4	35.3	42.2
Conductivity (mmhos)	38125	38183	37087	40817	38548
Turbidity (NTU'S)	11.9	4.9	4.7	4.6	6.5
Temperature (°C)	22.8	30.0	26.5	17.8	24.3
Total Nitrogen (mg/l)	1.15	0.97	1.19	0.86	1.04

I 49. 89/2: 85 (15) map B16

GIBSONTON QUADRANGLE
FLORIDA – HILLSBOROUGH CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

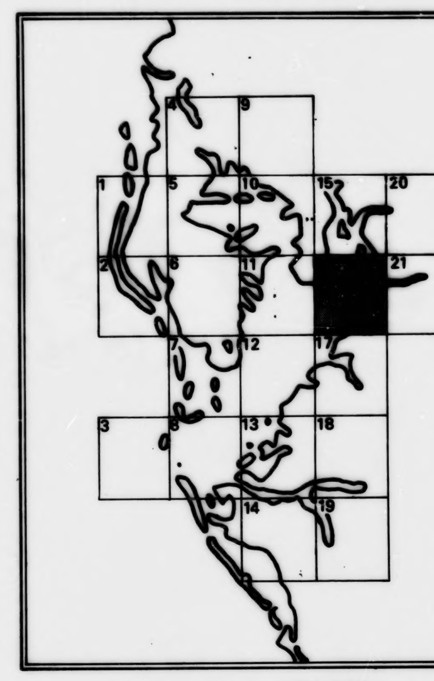
MAP B16

ORIGINAL

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

GIBSONTON



Scale 1:24,000

1984

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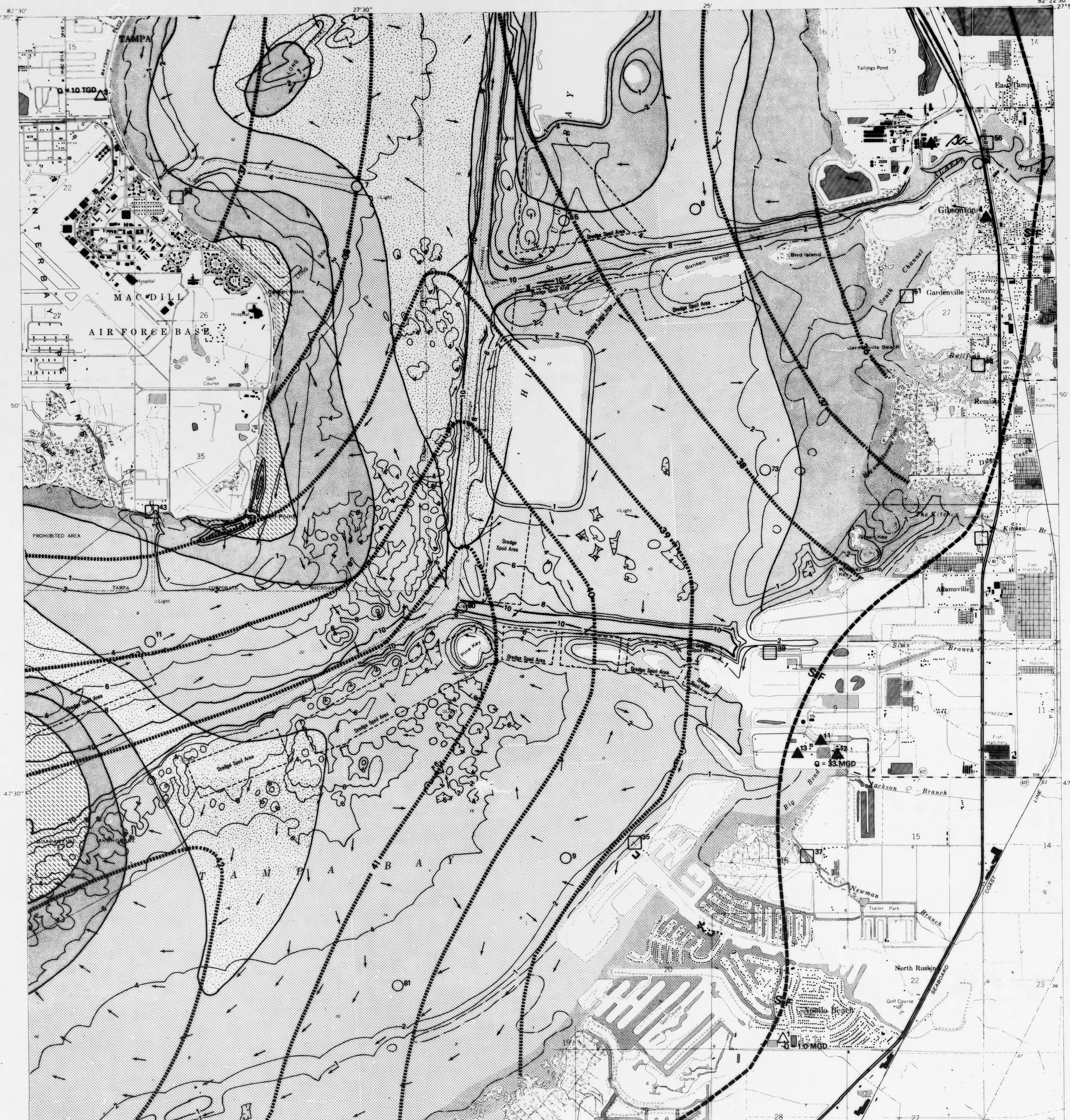
B. WATER RESOURCES

Produced by U.S. Fish and Wildlife Service
Projection and 1,000 meter grid, zone 17: Universal Transverse Mercator
10,000-foot grid ticks based on Florida coordinate system, east and west zones

Overlay material compiled in 1984 from latest available data obtained from Federal, State and Local government agencies and other sources.

There is no map A19 due to a lack of data.



SCALE 1:24 000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

LEGEND

MEAN ANNUAL MID-DEPTH SPECIFIC CONDUCTIVITY ISOPLETH (WATER QUALITY) CONTOUR MAP (35)
Five year mean annual specific conductivity September 1978 - August 1983 (mmhos)

POINT SOURCE DISCHARGES *

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△10 Q= ___ Municipal Point Source Discharge. Q is permitted capacity in total gallons per day (tgd) or millions of gallons per day (mgd).

DREDGE SPOIL DISPOSAL SITES (Dredge Spoil Area)

TIDE STATION *
(National Ocean Service)

10 Active tide station. The tide station number is listed next to the symbol.

10 Inactive tide station location. The tide station number is listed next to the symbol.

WATER QUALITY SAMPLING STATION *
(Hillsborough County Environmental Protection Commission)
Five year seasonal means, Sept. 1978 - Aug. 1983

BATHYMETRY (—2—)
The contour interval is 2.0 meters with an initial 1.0 meter supplemental contour line added to better define shoals and inshore tidal flats.

INTERTIDAL ZONE
This zone demarcates the area exposed and flooded by the tides and occurs between the line and the shore.

GENERALIZED SEDIMENT MAP
- Sand
- Shelly Sand
- Silty Sand
- Clayey Sand
- Sandy Clay
- Silt

NET TIDAL CURRENT
Resultant tidal current. The direction is indicated by the arrow and the discharge range is feet per second.
- 0.01 - 0.10 ft/sec
- 0.11 - 0.20 ft/sec
- 0.21 - 0.30 ft/sec
- 0.31 - 0.50 ft/sec
- > 0.50 ft/sec

FRESHWATER/SALTWATER INTERFACE (F/S)
(U.S. Geological Survey 1979)
250 mg/l line of equal chloride concentration in the upper part of Floridan aquifer.

*Symbols appearing with numbers are described more fully in the narrative

THE TAMPA BAY ENVIRONMENTAL ATLAS WAS PRODUCED BY THE U.S. FISH AND WILDLIFE SERVICE, DIVISION OF BIOLOGICAL SERVICES NATIONAL COASTAL ECOSYSTEMS TEAM (FWS/OBS) FOR COASTAL PLANNERS, DECISION MAKERS AND THE GENERAL PUBLIC, TO DETERMINE AND EVALUATE CHANGE AND TO RESOLVE CONFLICTS AMONG LAND USES, FISH AND WILDLIFE REQUIREMENTS, AND THE MAINTENANCE OF ECOLOGICAL DIVERSITY. THE STUDY AREA INCLUDES A MAJOR PORTION OF THE COASTAL COUNTIES OF PINELLAS, HILLSBOROUGH, MANATEE, AND A SMALL PORTION OF SARASOTA. THERE IS NO ATTEMPT, IN THE DESIGN OR PRODUCTS OF THIS STUDY, TO DEFINE THE LIMITS OF PROPRIETARY JURISDICTION OF ANY FEDERAL, STATE, OR LOCAL GOVERNMENT TO ESTABLISH THE GEOGRAPHICAL SCOPE OF THE REGULATORY PROGRAMS OF GOVERNMENT AGENCIES.

THIS MAP HAS BEEN COMPILED FROM A VARIETY OF SOURCE MATERIALS INCLUDING MAPS, AERIAL PHOTOS, AND REPORTS. SINCE MANY SOURCES CONTAINED GENERALIZED LOCATIONS OF RESOURCES AND OTHER MAPPED FEATURES, THE USER SHOULD NOT RELY ON THESE MAPS FOR PRECISE MEASUREMENTS OF DISTANCES OR AREAS.

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SALINITY: Conductivity for Tampa Bay water quality sampling stations Sept. 1978 - August 1983. Hillsborough County Environmental Protection Commission.

POINT SOURCE DISCHARGES: Computer printout of industrial and municipal point source discharges in West Central Florida. Florida Dept. of Environmental Regulation, 1983.

DREDGE SPOIL DISPOSAL AREAS: Dredge and Spoil easement location maps. Florida Dept. of Natural Resources

Selected areas on this U.S.G.S. base map updated using information extracted from aerial photography. This information not field checked.

N.O.S. TIDE STATIONS: Index of tide stations for the state of Florida. National Ocean Service, Rockville, Md. 1981.

WATER QUALITY: Total chlorophyll, conductivity, turbidity, temperature and total nitrogen data for Tampa Bay water quality stations, Sept. 1978 - August 1983. Hillsborough County Environmental Protection Commission.

BATHYMETRIC: Bathymetric map to St. Petersburg Quadrangle, N.O.S. 1978.

INTERTIDAL ZONE: Nautical Chart #'s 11410, 11413, 11414 and 11425. N.O.S., Rockville, Md. 1983.

SEDIMENTS: Sediments, oceanographic observations and Floristic data for Tampa Bay, Florida and adjacent waters, 1961-1965. Taylor and Saloman, 1969.

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FRESHWATER-SALTWATER INTERFACE: Position of the Freshwater-Saltwater interface in the upper part of the Floridan aquifer, Southwest Florida, 1979. U.S.G.S. water resources open-file report 82-90. Causseaux and Fretwell, 1982.

FOR COMPLETE REFERENCE SEE MAP NARRATIVE

Supplemental Legend (Cont'd)

Station #11 Lat. 27°48'46" Long. 82°29'03"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	42.6	55.1	38.1	18.1	38.0
Conductivity (mmhos)	39133	38383	38633	43633	39886
Turbidity (NTU'S)	7.6	8.0	6.4	7.0	7.2
Temperature (°C)	21.7	29.0	25.6	18.4	23.2
Total Nitrogen (mg/l)	1.10	1.46	1.32	0.81	1.17

Station #55 Lat. 27°51'09" Long. 82°26'07"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	38.8	48.4	37.6	37.2	40.0
Conductivity (mmhos)	38633	38100	36500	41150	38471
Turbidity (NTU'S)	7.2	5.0	5.2	4.6	5.5
Temperature (°C)	22.2	29.3	25.6	17.5	23.6
Total Nitrogen (mg/l)	1.19	0.94	1.23	0.78	0.98

Station #73 Lat. 27°48'32" Long. 82°24'46"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	38.7	64.2	35.0	27.4	46.8
Conductivity (mmhos)	39100	38400	38333	41267	39025
Turbidity (NTU'S)	7.4	6.8	4.9	4.5	5.9
Temperature (°C)	22.2	29.7	25.5	17.0	23.6
Total Nitrogen (mg/l)	1.00	1.54	1.40	0.82	1.14

Station #74 Lat. 27°51'31" Long. 82°23'04"

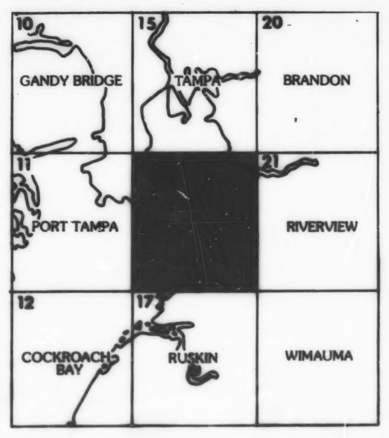
PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	45.4	37.9	38.5	32.2	38.5
Conductivity (mmhos)	34670	37650	30967	30694	33495
Turbidity (NTU'S)	6.8	5.4	8.4	5.3	6.5
Temperature (°C)	23.7	29.5	25.6	16.4	23.8
Total Nitrogen (mg/l)	1.50	1.38	1.43	1.72	1.51

Station #80 Lat. 27°48'38" Long. 82°26'57"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	37.0	44.4	32.4	29.4	35.8
Conductivity (mmhos)	39900	40533	38800	43083	40366
Turbidity (NTU'S)	6.1	5.6	3.4	4.0	4.6
Temperature (°C)	22.2	29.8	25.7	17.0	23.6
Total Nitrogen (mg/l)	1.04	0.80	1.16	0.81	0.92

Station #81 Lat. 27°48'15" Long. 82°27'21"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	35.3	32.2	27.6	24.8	30.0
Conductivity (mmhos)	41067	41183	39133	44050	41368
Turbidity (NTU'S)	6.7	4.7	3.6	3.3	4.6
Temperature (°C)	21.8	29.4	25.7	16.8	23.4
Total Nitrogen (mg/l)	0.96	0.74	0.93	0.56	0.80



Note: Specific conductivity values on the supplemental legend should be in µmhos.

Supplemental Legend for Water Quality Stations on This Map

Station #7 Lat. 27°51'21" Long. 82°27'37"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	47.5	53.1	41.7	44.0	46.6
Conductivity (mmhos)	38700	36567	34600	41283	37400
Turbidity (NTU'S)	8.8	6.2	5.7	5.6	6.6
Temperature (°C)	22.4	29.1	25.7	17.0	23.6
Total Nitrogen (mg/l)	1.29	1.21	1.17	0.82	1.12

Station #8 Lat. 27°51'00" Long. 82°24'57"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	48.8	116.7	48.6	38.8	62.7
Conductivity (mmhos)	36500	36883	32733	39250	36342
Turbidity (NTU'S)	7.7	7.6	6.7	6.6	7.2
Temperature (°C)	22.7	29.8	25.6	17.8	23.9
Total Nitrogen (mg/l)	1.33	1.65	1.46	0.90	1.34

Station #9 Lat. 27°47'06" Long. 82°25'46"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	43.0	48.6	32.6	29.7	38.5
Conductivity (mmhos)	40134	40050	37833	43900	40329
Turbidity (NTU'S)	7.8	5.3	3.7	3.9	5.2
Temperature (°C)	23.0	29.8	26.3	18.0	24.3
Total Nitrogen (mg/l)	1.06	1.01	1.23	0.60	1.00

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J 49.89/2:85(15) map B17

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

RUSKIN QUADRANGLE
FLORIDA
7.5 MINUTE SERIES (TOPOGRAPHIC)

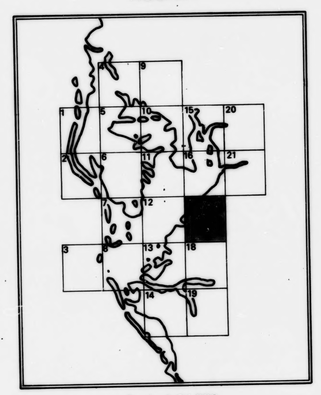
MAP B17

ORIGINAL

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

RUSKIN



Scale 1:24,000

1984

TOPICAL MAPS IN THIS ATLAS:
A. BIOLOGICAL RESOURCES
B. WATER RESOURCES

Produced by U.S. Fish and Wildlife Service
Projection and 1,000 meter grid, zone 17: Universal Transverse Mercator
10,000-foot grid ticks based on Florida coordinate system, east and west zones

Overlay material compiled in 1984 from latest available data obtained from Federal, State and Local government agencies and other sources.

There is no map A19 due to a lack of data.

LEGEND

35 — MEAN ANNUAL MID-DEPTH SPECIFIC CONDUCTIVITY ISOPLETH (WATER QUALITY) CONTOUR MAP
Five year mean annual specific conductivity September 1978 - August 1983 (mmhos)

POINT SOURCE DISCHARGES *

▲10 Q=___ Industrial Point Source Discharge. Q is permitted capacity in total gallons per day (tgd) or in millions of gallons per day (mgd).

△10 Q=___ Municipal Point Source Discharge. Q is permitted capacity in total gallons per day (tgd) or millions of gallons per day (mgd).

Dredge Spoil Area — DREDGE SPOIL DISPOSAL SITES

TIDE STATION *
(National Ocean Service)

10 — Active tide station. The tide station number is listed next to the symbol.

10 — Inactive tide station location. The tide station number is listed next to the symbol.

10 — WATER QUALITY SAMPLING STATION *
(Hillsborough County Environmental Protection Commission)
Five year seasonal means. Sept. 1978 - Aug. 1983

2 — BATHYMETRY
The contour interval is 2.0 meters with an initial 1.0 meter supplemental contour line added to better define shoals and inshore tidal flats.

INTERTIDAL ZONE
This zone demarcates the area exposed and flooded by the tides and occurs between the line and the shore.

GENERALIZED SEDIMENT MAP
- Sand
- Shelly Sand
- Silty Sand
- Clayey Sand
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- Silt

NET TIDAL CURRENT
Resultant tidal current. The direction is indicated by the arrow and the discharge range is feet per second.
- 0.01 - 0.10 ft/sec
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- 0.21 - 0.30 ft/sec
- 0.31 - 0.50 ft/sec
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F / S — FRESHWATER/SALTWATER INTERFACE
(U.S. Geological Survey 1979)
250 mg/l line of equal chloride concentration in the upper part of Floridan aquifer.

*Symbols appearing with numbers are described more fully in the narrative

SCALE 1:24 000

1 MILE 0
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 KILOMETER

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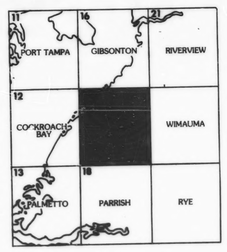
FOR COMPLETE REFERENCE SEE MAP NARRATIVE



Supplemental Legend for Water Quality Stations on This Map

Station #112 — Lat. 27°42'15" — Long. 82°26'50"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (mg/l)	No Data	No Data	No Data	17.1	---
Conductivity (mmhos)	20843	22557	13135	17761	18613
Turbidity (NTU'S)	3.8	4.1	3.8	2.9	3.8
Temperature (°C)	23.8	29.3	25.3	14.7	23.3
Total Nitrogen (mg/l)	1.02	1.16	1.02	0.95	1.04

Note: Specific conductivity values on the supplemental legend should be in mmhos.

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I 49.89/2:85 (15) map B 18

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF FLORIDA

PARRISH QUADRANGLE
FLORIDA–MANATEE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

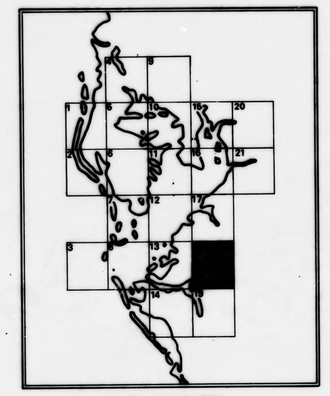
MAP B18

ORIGINAL

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

PARRISH



Scale 1:24,000

1984

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B. WATER RESOURCES

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LEGEND

35 MEAN ANNUAL MID-DEPTH SPECIFIC CONDUCTIVITY ISOPLETH (WATER QUALITY) CONTOUR MAP
Five year mean annual specific conductivity September 1978 - August 1983 (mmhos)

POINT SOURCE DISCHARGES *

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Dredge Spoil Area — DREDGE SPOIL DISPOSAL SITES

TIDE STATION * (National Ocean Service)

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○10 WATER QUALITY SAMPLING STATION * (Hillsborough County Environmental Protection Commission) Five year seasonal means, Sept. 1978 - Aug. 1983

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GENERALIZED SEDIMENT MAP
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- Shelly Sand
- Silty Sand
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- 0.01 - 0.10 ft/sec
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- 0.21 - 0.30 ft/sec
- 0.31 - 0.50 ft/sec
- > 0.50 ft/sec

F S FRESHWATER/SALTWATER INTERFACE
(U.S. Geological Survey 1979)
250-mg/l line of equal chloride concentration in the upper part of Floridan aquifer.

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SCALE 1:24 000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER

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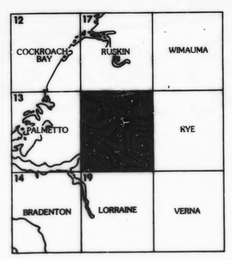

Note: Specific conductivity values on the supplemental legend should be in mmhos.

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I 49.89/2:85 (15) map B20

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

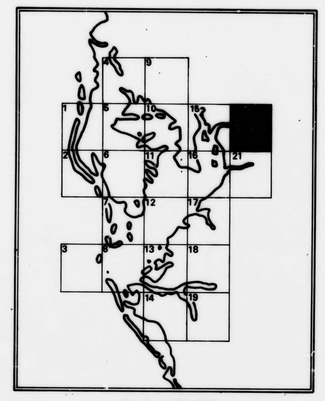
BRANDON QUADRANGLE
FLORIDA-HILLSBOROUGH CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

MAP B20

ORIGINAL TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

BRANDON



Scale 1:24,000

1984

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B. WATER RESOURCES

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Five year mean annual specific conductivity September 1978 - August 1983 (mmhos)

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Dredge Spoil Area — DREDGE SPOIL DISPOSAL SITES

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Five year seasonal means, Sept. 1978 - Aug. 1983

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F / S FRESHWATER/SALTWATER INTERFACE
(U.S. Geological Survey 1979)
250 mg/l line of equal chloride concentration in the upper part of Floridan aquifer.

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SCALE 1:24 000
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1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER

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BATHYMETRIC: Bathymetric map to St. Petersburg Quadrangle, N.O.S. 1978.

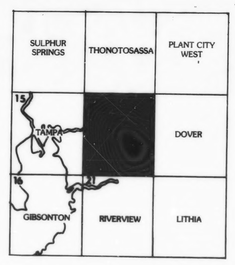
INTERTIDAL ZONE: Nautical Chart #'s 11410, 11413, 11414 and 11425. N.O.S., Rockville, Md. 1983.

SEDIMENTS: Sediments, oceanographic observations and Floristic data for Tampa Bay, Florida and adjacent waters. 1961-1965. Taylor and Saloman, 1969.

TIDAL CURRENTS: Changes in tidal flow, circulation and flushing caused by dredge and fill in Tampa Bay, Florida. U.S. Geological Survey Open File Report #84-647. Goodwin, 1984.

FRESHWATER-SALTWATER INTERFACE: Position of the Freshwater-Saltwater interface in the upper part of the Floridan aquifer, Southwest Florida, 1979. U.S.G.S. water resources open-file report 82-90. Causaseux and Fretwell, 1982.

FOR COMPLETE REFERENCE SEE MAP NARRATIVE



Note: Specific conductivity values on the supplemental legend should be in µmhos.

Supplemental Legend for Water Quality Stations on This Map

Station #110 Lat. 27°57'08" Long. 82°18'19"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	57.8	65.3	36.5	30.2	47.4
Conductivity (mmhos)	22500	26545	21338	29805	25684
Turbidity (NTU'S)	5.2	6.7	7.2	3.5	5.8
Temperature (°C)	24.9	31.0 *	28.7	18.4	25.2
Total Nitrogen (mg/l)	1.71	1.28	1.38	0.88	1.31

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I 49.89/2: 85(15) map B21

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

RIVERVIEW QUADRANGLE
FLORIDA-HILLSBOROUGH CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

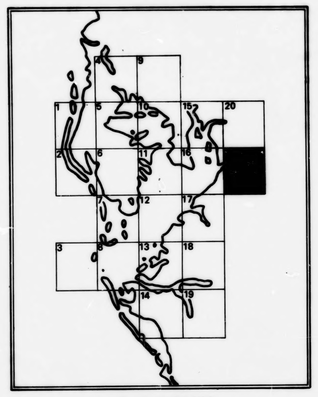
MAP B21

ORIGINAL

TAMPA BAY ENVIRONMENTAL ATLAS

WATER RESOURCES

RIVERVIEW



Scale 1:24,000

1984

TOPICAL MAPS IN THIS ATLAS:
A. BIOLOGICAL RESOURCES
B. WATER RESOURCES

Produced by U.S. Fish and Wildlife Service
Projection and 1,000 meter grid, zone 17: Universal Transverse Mercator
10,000-foot grid ticks based on Florida coordinate system, east and west zones

Overlay material compiled in 1984 from latest available data obtained from Federal, State and Local government agencies and other sources.

There is no map A19 due to a lack of data.

LEGEND

35 — MEAN ANNUAL MID-DEPTH SPECIFIC CONDUCTIVITY ISOPLETH (WATER QUALITY) CONTOUR MAP
Five year mean annual specific conductivity September 1978 - August 1983 (mmhos)

POINT SOURCE DISCHARGES *

10 Q=___ Industrial Point Source Discharge. Q is permitted capacity in total gallons per day (tgd) or in millions of gallons per day (mgd).

10 Q=___ Municipal Point Source Discharge. Q is permitted capacity in total gallons per day (tgd) or millions of gallons per day (mgd).

Dredge Spoil Area — DREDGE SPOIL DISPOSAL SITES

TIDE STATION * (National Ocean Service)

10 — Active tide station. The tide station number is listed next to the symbol.

10 — Inactive tide station location. The tide station number is listed next to the symbol.

10 — WATER QUALITY SAMPLING STATION * (Hillsborough County Environmental Protection Commission)
Five year seasonal means, Sept. 1978 - Aug. 1983

2 — BATHYMETRY
The contour interval is 2.0 meters with an initial 1.0 meter supplemental contour line added to better define shoals and inshore tidal flats.

INTERTIDAL ZONE
This zone demarcates the area exposed and flooded by the tides and occurs between the line and the shore.

GENERALIZED SEDIMENT MAP
- Sand
- Shelly Sand
- Silty Sand
- Clayey Sand
- Sandy Clay
- Silt

NET TIDAL CURRENT
Resultant tidal current. The direction is indicated by the arrow and the discharge range is feet per second
- 0.01 - 0.10 ft/sec
- 0.11 - 0.20 ft/sec
- 0.21 - 0.30 ft/sec
- 0.31 - 0.50 ft/sec
- > 0.50 ft/sec

F/S — FRESHWATER/SALTWATER INTERFACE
(U.S. Geological Survey 1979)
250 mg/l line of equal chloride concentration in the upper part of Floridan aquifer.

*Symbols appearing with numbers are described more fully in the narrative

SCALE 1:24 000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER

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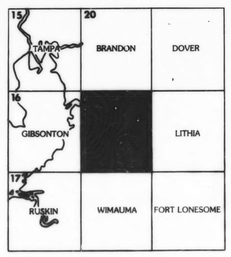

Note: Specific conductivity values on the supplemental legend should be in µmhos.

Supplemental Legend for Water Quality Stations on This Map

Station #114 Lat. 27°51'27" Long. 82°28'11"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	No Data	No Data	No Data	5.8	—
Conductivity (mmhos)	523	493	973	561	626
Turbidity (JTU'S)	3.0	5.8	3.9	2.9	3.9
Temperature (°C)	22.3	29.5	23.8	15.8	22.1
Total Nitrogen (mg/l)	2.01	1.91	2.82	2.29	2.36

Station #132 Lat. 27°50'24" Long. 82°28'50"

PARAMETER	SPRING (3-5)	SUMMER (6-8)	FALL (9-11)	WINTER (12-2)	ANNUAL (1-12)
Total Chlorophyll (ug/l)	13.7	11.2	14.9	13.5	13.3
Conductivity (mmhos)	391	348	437	522	398
Turbidity (JTU'S)	4.0	13.2	5.1	5.3	8.9
Temperature (°C)	20.8	29.4	22.9	14.9	20.7
Total Nitrogen (mg/l)	1.14	1.41	1.26	1.37	1.29

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